AudioCodes CPE & Access Analog Gateways

SIP MediaPack™

Installation Manual

Version 6.0

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Table of Contents

1 Introduction 11

2 Installing the Device 13

2.1 Installing the MP-11x Series 13
2.1.1 Physical Description 13
2.1.1.1 MP-11x Front Panel 13
2.1.1.2 MP-11x Rear Panel 14
2.1.2 Unpacking and Checking Package Contents 14
2.1.3 Mounting the MP-11x 15
2.1.3.1 Desktop Mounting 16
2.1.3.2 Wall Mounting 16
2.1.3.3 19-inch Rack Mounting 16
2.1.4 Cabling the MP-11x 17
2.1.4.1 Connecting MP-11x to the Network 18
2.1.4.2 Connecting MP-11x to FXS /FXO Devices 18
2.1.4.3 Cabling the FXS Lifeline 19
2.1.4.4 Connecting MP-11x RS-232 Port to a PC 20
2.1.4.5 Connecting MP-11x to Power 21
2.2 Installing MP-124 22
2.2.1 Physical Description 22
2.2.1.1 MP-124 Front Panel 22
2.2.1.2 MP-124 Rear Panel 23
2.2.2 Unpacking and Checking Package Contents 24
2.2.3 Mounting the MP-124 24
2.2.3.1 Desktop Mounting 24
2.2.3.2 19-inch Rack Mounting 25
2.2.4 Cabling the MP-124 26
2.2.4.1 Power Surge Protection and Grounding of MP-124 27
2.2.4.2 Connecting MP-124 to the Ethernet Network 29
2.2.4.3 Connecting MP-124 to FXS Interface 30
2.2.4.4 Connecting MP-124 RS-232 Port to a PC 32
2.2.4.5 Connecting MP-124 to Power 33

3 Configuring the Device 35

3.1 Assigning an IP Address 35
3.1.1 Assigning an IP Address Using HTTP 36
3.1.2 Assigning an IP Address Using BootP 37
3.1.3 Assigning an IP Address Using the Voice Menu Guidance 38
3.1.4 Assigning an IP Address Using the CLI 41
3.2 Configuring Basic SIP Parameters 42
3.2.1 Enabling Channels and Configuring Call Routing (Example) 43
3.3 Saving and Resetting the Device 45
3.4 Changing Login User Name and Password 46
3.5 Backing Up and Restoring Configuration 47
3.6 Restoring Factory Default Settings 48
3.7 Upgrading the Device 49
3.7.1 Software Upgrade Wizard 49
3.7.2 Loading ini and Auxiliary Files 52

4 Monitoring the Device 55

4.1 Front-Panel LEDs 55

4.2 Web Interface 56

4.2.1 Viewing Alarms 56

4.2.2 Viewing Channel Status 57

List of Figures

Figure 1-1: Required Steps to Install the Device 11
Figure 2-1: MP-11x (e.g., MP-118) Front Panel 13
Figure 2-2: MP-11x (e.g., MP-118) Rear Panel Connectors 14
Figure 2-3: View of MP-11x Underside 15
Figure 2-4: AudioCodes 19-inch Rack Shelf for MP-11x 16
Figure 2-5: MP-11x Rack Mount 17
Figure 2-6: RJ-45 Connector Pinouts 18
Figure 2-7: RJ-11 Phone Connector Pinouts 18
Figure 2-8: RJ-11 Lifeline Splitter Connector Pinouts 19
Figure 2-9: Lifeline Cabling (Using Splitter Cable) for FXS-Only Devices 19
Figure 2-10: Lifeline Cabling for FXS and FXO Devices 20
Figure 2-11: PS/2 to DB-9 Adaptor Connector Pinouts 21
Figure 2-12: PS/2 Connector Pinouts 21
Figure 2-13: MP-124 Front Panel 22
Figure 2-14: MP-124 Rear Panel - AC Power Model 23
Figure 2-15: MP-124 Rear Panel - DC Power Model 23
Figure 2-16: MP-124 Desktop Mounting 24
Figure 2-17: MP-124 with Brackets for Rack Installation 25
Figure 2-18: Grounding and Power Surge Protection 28
Figure 2-19: RJ-45 Connector Pinouts 29
Figure 2-20: 50-pin Telco Connector (MP-124/FXS only) 30
Figure 2-21: MP-124 in a 19-inch Rack with MDF Adaptor 31
Figure 2-22: MP-124 RS-232 Connector Pinouts 32
Figure 2-23: Wired DC Power Terminal Block Connected to MP-124 34
Figure 3-1: Enter Network Password Screen 36
Figure 3-2: BootP Client Configuration Screen 38
Figure 3-3: Enabling Channels in Endpoint Phone Number Table Page 43
Figure 3-4: Tel to IP Routing Rules 43
Figure 3-5: Connecting Two Devices 44
Figure 3-6: Maintenance Actions Page 45
Figure 3-7: WEB User Accounts Page (for Users with 'Security Administrator' Privileges) 46
Figure 3-8: Configuration File Page 47
Figure 3-9: Start Software Upgrade Wizard Screen 50
Figure 3-10: Load CMP File Wizard Page 50
Figure 3-11: End Process Wizard Page 51
Figure 3-12: Load Auxiliary Files Page 53
Figure 4-1: Current Alarms in Active Alarms Page 56
Figure 4-2: MP-11x Home Page 57
Figure 4-3: MP-124 Home Page 57

List of Tables

Table 2-1: MP-11x Rear Panel Component Descriptions 14
Table 2-2: Mounting Components on MP-11x Underside 15
Table 2-3: MP-11x Rack Mount 17
Table 2-4: Reset Button Description on MP-124 Front Panel 22
Table 2-5: MP-124 Rear Panel Component Descriptions 23
Table 2-6: MP-124 Rear Panel Ethernet LEDs Description 23
Table 2-7: Pin Allocations of the 50-pin Telco Connector 30
Table 3-1: Default IP Addresses 35
Table 3-2: Configuration Parameters Available via the Voice Menu 40
Table 3-3: Auxiliary Files Descriptions 52
Table 4-1: MP-11x Front-Panel LEDs Description 55
Table 4-2: MP-124 Front-Panel LEDs Description 55
Table 4-3: Color-Coding of Channel Status Icon 57

Notice

This Installation Manual describes the hardware installation and quick configuration setup for AudioCodes MediaPack series Voice-over-IP (VoIP) SIP media gateways.

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Abbreviations and Terminology

Each abbreviation, unless widely used, is spelled out in full when first used. Only industry-standard terms are used throughout this manual. Hexadecimal notation is indicated by 0x preceding the number.

Regulatory Information

The Regulatory Information can be viewed at http://www.audiocodes.com/downloads.

Related Documentation

Document Name
Product Reference Manual
MP-11x & MP-124 SIP Release Notes
MP-11x & MP-124 SIP User's Manual
CPE Configuration Guide for IP Voice Mail

Notes: Throughout this manual and unless otherwise specified, the following terms are used:

- *Device* refers to the MediaPack series gateways.
- *MediaPack* refers to the MP-124, MP-118, MP-114, and MP-112 VoIP devices.
- *MP-11x* refers to MP-118, MP-114, and MP-112 devices.

Note: The MP-11x and MP-124 devices are **indoor** units and therefore, must be installed only indoors. However, the MP-124 FXS telephony cables are outdoor-compliant and therefore, can be routed outdoors (MP-124 part numbers MP-124/24S/AC/OD and MP-124/24S/DC/OD).

Caution Electrical Shock

Do not open or disassemble this device. The device carries high voltage and contact with internal components may expose you to electrical shock and bodily harm.

Warning: The device is supplied as a sealed unit and must only be serviced by qualified service personnel.

Warning: Disconnect the device from the mains and Telephone Network Voltage (TNV) before servicing.

Warning: FXO and FXS ports are considered to be TNV-3.

Notes:

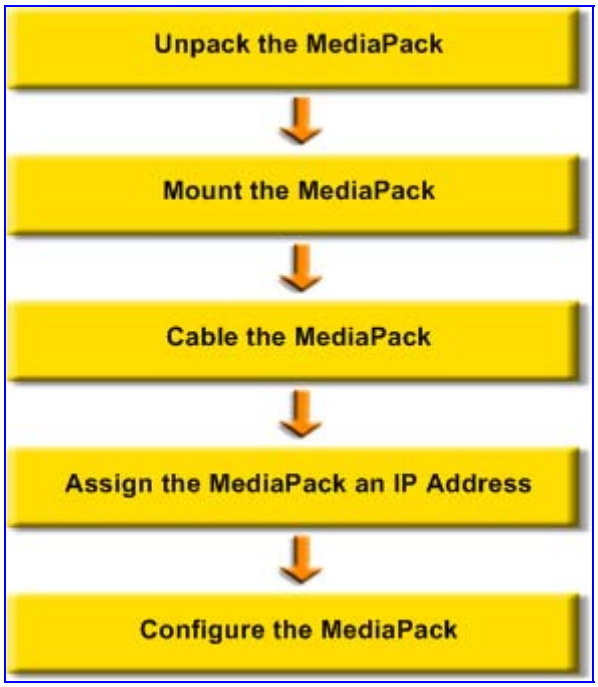
- FXO (Foreign Exchange Office) is the interface replacing the analog telephone and connects to a Public Switched Telephone Network (PSTN) line from the Central Office (CO) or to a Private Branch Exchange (PBX). The FXO is designed to receive line voltage and ringing current, supplied from the CO or the PBX (just like an analog telephone). An FXO VoIP device interfaces between the CO/PBX line and the Internet.
- FXS (Foreign Exchange Station) is the interface replacing the Exchange (i.e., the CO or the PBX) and connects to analog telephones, dial-up modems, and fax machines. The FXS is designed to supply line voltage and ringing current to these telephone devices. An FXS VoIP device interfaces between the analog telephone devices and the Internet.

Reader's Notes

1 Introduction

This manual provides you with step-by-step procedures for initial and basic setup of the device, including hardware installation and software configuration. The flowchart below summarizes these steps:

Figure 1-1: Required Steps to Install the Device



Notes:

- For detailed information on how to fully configure the device, refer to the device's *User's Manual*.
- Prior knowledge of IP networking is recommended.

Reader's Notes

2 Installing the Device

This section describes the MP-11x (refer to 'Installing the MP-11x Series' on page 13) and MP-124 (refer to 'Installing MP-124' on page 21) hardware installation. This includes physical description, unpacking the shipped package, and mounting and cabling procedures.

2.1 Installing the MP-11x Series

This subsection describes the MP-11x hardware installation.

2.1.1 Physical Description

The subsections below provide a physical description of the front and rear panels of the MP-11x.

2.1.1.1 MP-11x Front Panel

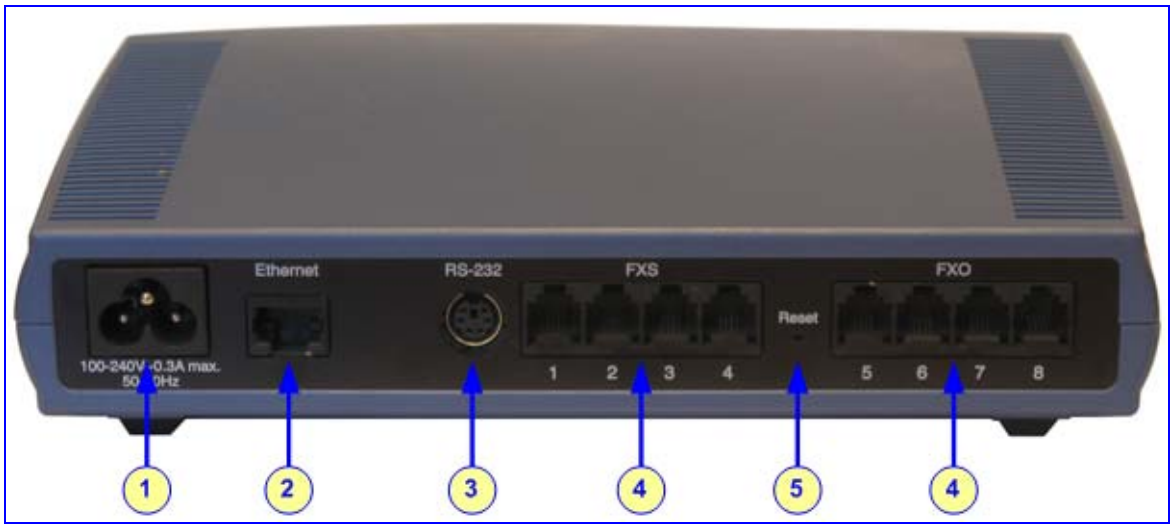
The device's front panel provides LEDs for indicating various operating statuses. The figure below displays the front panel of the MP-118. This is similar to the MP-114 and MP-112 models, differing only in the number of **Channel Status** LEDs (corresponding to the number of channels). For a description of the device's LEDs, refer to 'Monitoring Front-Panel LEDs' on page 55.

Figure 2-1: MP-11x (e.g., MP-118) Front Panel

2.1.1.2 MP-11x Rear Panel

The device's rear panel provides the ports for cabling the device to the various interfaces. The figure below displays the rear panel of the MP-118 device (as an example).

Figure 2-2: MP-11x (e.g., MP-118) Rear Panel Connectors



The following table describes the MP-11x rear panel ports:

Table 2-1: MP-11x Rear Panel Component Descriptions

Item #	Label	Component Description
1	**100-240~0.3A max.**	AC power supply socket.
2	**Ethernet**	10/100Base-TX Uplink port.
3	**RS-232**	RS-232 status port (requires a DB-9 to PS/2 adaptor). **Note:** MP-112 does not provide a serial port.
4	**FXS** and/or **FXO**	Provides two, four, or eight FXS/FXO ports (depending on MediaPack model). **Note:** MP-112 does not support FXO interfaces.
5	**Reset**	Reset button for resetting the device.

2.1.2 Unpacking and Checking Package Contents

Follow the procedure below for unpacking the carton in which the MP-11x is shipped.

➢ **To unpack the MP-11x, take these 6 steps:**

1. Open the carton and remove the packing materials.
2. Remove the MP-11x unit from the carton.
3. Check that there is no equipment damage.

4. Ensure that in addition to the MP-11x unit, the package contains the following items:
   - AC power cable.
   - Small plastic bag containing four anti-slide bumpers for desktop installation.
   - Regulatory Information document.
5. Check, retain, and process any documents.
6. Notify AudioCodes or your local supplier of any damage or discrepancies.

2.1.3 Mounting the MP-11x

The device can be mounted in one of the following ways:

- Desktop mounting (refer to 'Desktop Mounting' on page 15).
- Wall mounting (refer to 'Wall Mounting' on page 16).
- Standard 19-inch rack mounting (refer to '19-inch Rack Mounting' on page 16).

The figure below shows the mounting components on the underside of the MP-11x:

Figure 2-3: View of MP-11x Underside

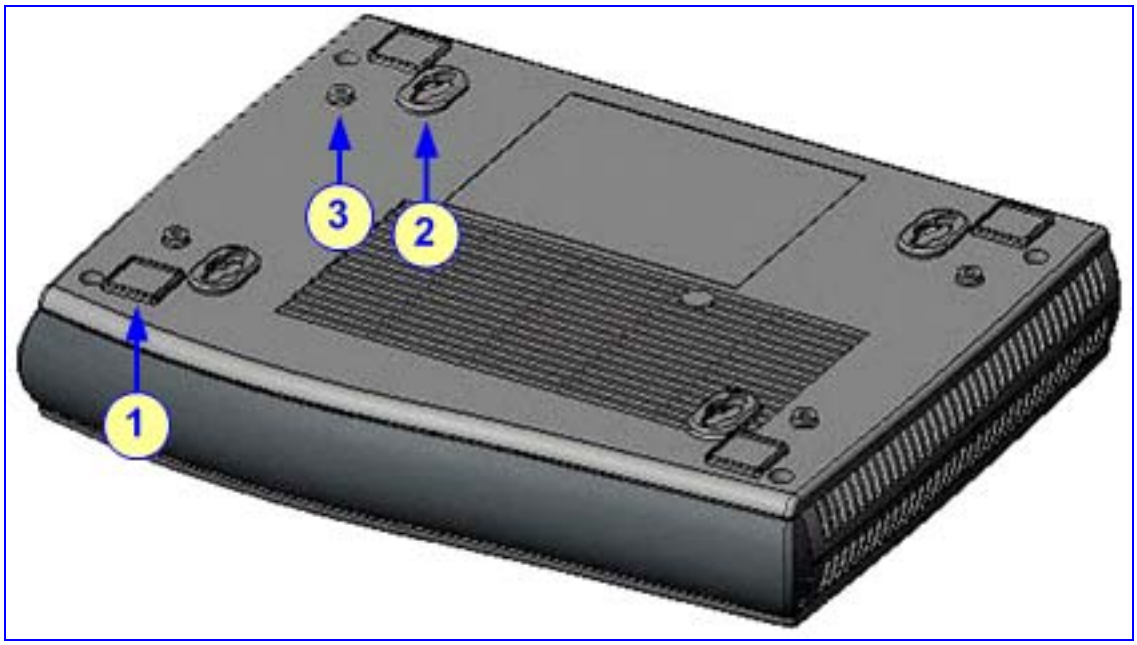


Table 2-2: Mounting Components on MP-11x Underside

Item #	Functionality
1	Square slot used to attach anti-slide bumpers (for desktop mounting).
2	Oval notch used to attach the MP-11x to a wall.
3	Screw opening used to attach the MP-11x to a 19-inch shelf rack.

2.1.3.1 Desktop Mounting

Attach the four (supplied) anti-slide bumpers to the base of the MP-11x and place it on a desktop in the desired position.

2.1.3.2 Wall Mounting

Follow the procedure below for mounting the MP-11x on a wall.

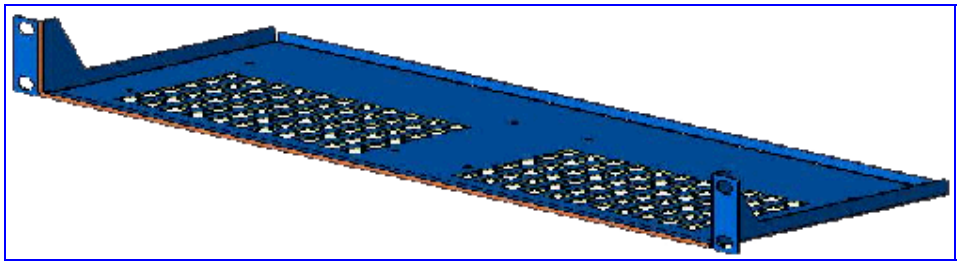
➢ **To mount the MP-11x on a wall:**

1. Drill four holes according to the following dimensions:
   - Horizontal distance between holes: 140 mm (5.51 inches)
   - Vertical distance between: 101.4 mm (4 inches)
2. Insert a wall anchor of the appropriate size into each hole.
3. Fasten a DIN 96 3.5X20 wood screw (not supplied) into each of the wall anchors.
4. Position the four oval notches, located on the underside of the MP-11x (refer to Item #2 in 'Mounting the MP-11x' on page 15), over the four screws and hang the MP-11x on them.

2.1.3.3 19-inch Rack Mounting

The MP-11x can be installed in a standard 19-inch rack by placing it on an AudioCodes' 19-inch rack-mounting shelf (special customer order) that must be pre-installed in a rack. The shelf can hold up to two MP-11x devices. The rack-mounting shelf can be ordered separately from AudioCodes. The 19-inch rack installation package contains a single shelf (shown in the figure below), and eight shelf-to-device screws.

Figure 2-4: AudioCodes 19-inch Rack Shelf for MP-11x



Note: The 19-inch rack shelf is not supplied in the standard package kit, but can be ordered separately: Bulk Pack package (MCMK00015) containing 10 rack mounting shelves for MP-11x. For ordering and pricing, please contact your AudioCodes' sales representative.

➢ **To install the MP-11x in a 19-inch rack:**

1. Attach one or two MP-11x devices to the shelf using the shelf-to-device screws (supplied).
2. Position the shelf in the rack and align its side holes with the rack frame holes.

3. Attach the shelf to the rack using four standard rack screws (not supplied).

Figure 2-5: MP-11x Rack Mount

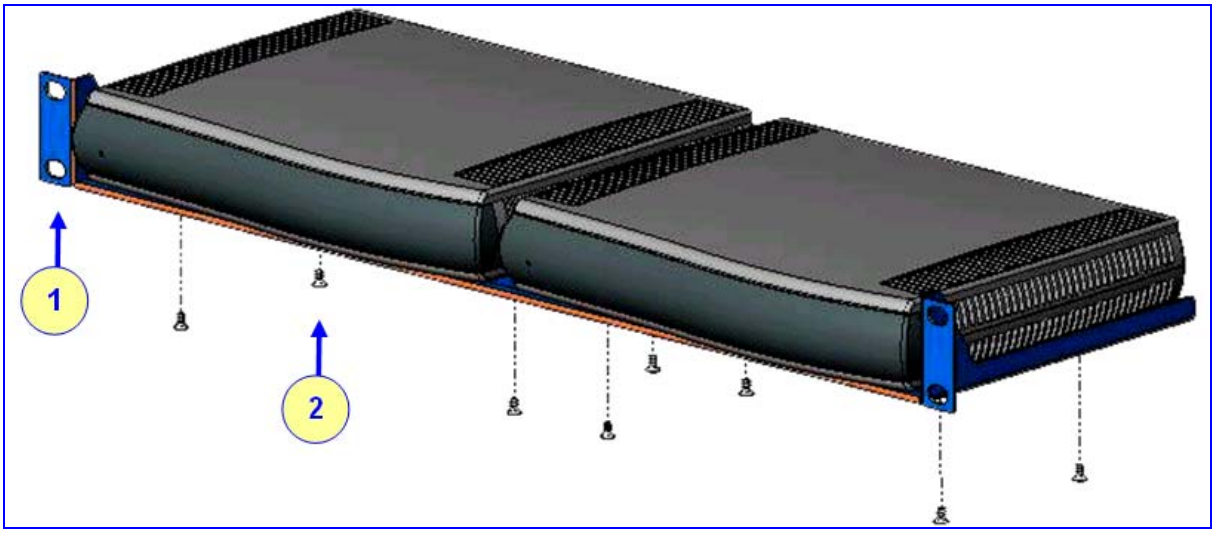


Table 2-3: MP-11x Rack Mount

Item #	Functionality
1	Standard rack holes used to attach the shelf to the rack.
2	Eight shelf-to-device screws.

2.1.4 Cabling the MP-11x

This section describes the MP-11x cabling procedures:

➢ To cable the MP-11x:

- Connecting to the Ethernet network (refer to 'Connecting MP-11x to the Network' on page 18).
- Connecting to FXS/FXO devices (refer to 'Connecting MP-11x to FXS /FXO Devices' on page 18).
- Cabling the FXS Lifeline (refer to 'Cabling the MP-11x/FXS Lifeline' on page 19).
- Serial connection to a computer (refer to 'Connecting MP-11x RS-232 Port to a PC' on page 20).
- Connecting to the power supply (refer to 'Connecting MP-11x to Power' on page 21).

Once you have completed the above hardware installation steps and after powering-up the MP-11x, the **Ready** and **Power** LEDs on the front panel light up green (after a self-testing period of about two minutes). Any malfunction in the startup procedure changes the **Fail** LED to red and the **Ready** LED is turned off (for details on the MP-11x LEDs, refer to 'Monitoring Front-Panel LEDs' on page 55). Once you have cabled the device, you can begin configuring the device (refer to 'Configuring the Device' on page 35).

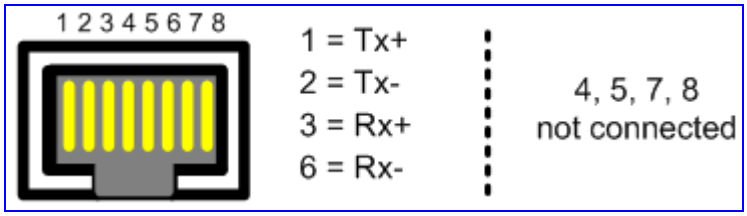
2.1.4.1 Connecting MP-11x to the Network

Follow the procedure below for connecting MP-11x directly to the Ethernet network.

➢ **To connect MP-11x directly to the Ethernet network:**

- Using a crossover Ethernet cable with RJ-45 connectors on either end, connect the MP-11x Ethernet port (labeled **Ethernet**), directly to the network. For RJ-45 connector pinouts, refer to the figure below:

Figure 2-6: RJ-45 Connector Pinouts



Note: When assigning an IP address to MP-11x using HTTP (refer to 'Assigning an IP Address Using HTTP' on page 36), you may be required to disconnect the Ethernet cable and re-cable it differently.

2.1.4.2 Connecting MP-11x to FXS /FXO Devices

Follow the procedure below for connecting MP-11x to FXO or FXS devices.

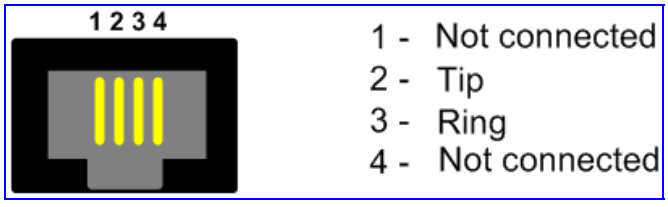
Warnings:

- Ensure that you connect FXS ports only to analog telephones or PBX trunk lines, and FXO ports only to CO/PBX lines; otherwise, damage to MP-11x may occur.
- To protect against electrical shock and fire, use a 26 AWG minimum wire to connect FXO ports to the PSTN.

➢ **To connect MP-11x to FXO or FXS devices:**

- Using an RJ-11 two-wire telephone cords (refer to figure below for connector pinouts), connect the MP-11x to the required telephone interfaces:
  - **FXS:** connect the MP-11x FXS ports (grouped under the label **FXS**) to fax machines, modems, or telephones.
  - **FXO:** connect the MP-11x FXO ports (grouped under the label **FXO**) to telephone exchange analog lines or PBX extensions.

Figure 2-7: RJ-11 Phone Connector Pinouts



2.1.4.3 Cabling the FXS Lifeline

The Lifeline provides a wired analog POTS phone connection to any PSTN or PBX FXS port when there is no power or when the network connection fails. Therefore, you can use the Lifeline phone even when MP-11x is not powered or not connected to the network.

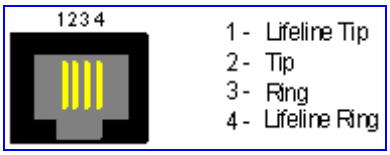
The Lifeline feature is implemented as follows, depending on FXO/FXS support:

- **For devices providing only FXS ports:** A single Lifeline connected to Port #1 using a splitter (not supplied) is available.
- **For devices providing FXS and FXO ports:** A splitter is not required - all FXS ports are automatically connected to corresponding FXO ports (i.e., FXS Port #1 to FXO Port #5, FXS Port #2 to FXO Port #6, and so on).
- **For devices providing only FXO ports:** A Lifeline is not available.

Note: The use of the Lifeline upon network failure can be disabled using the LifeLineType *ini* file parameter (described in the *User's Manual*).

The Lifeline's splitter connects pins #1 and #4 to another source of an FXS port, and pins #2 and #3 to the POTS (FXS) phone. Refer to the Lifeline splitter pinouts in the figure below:

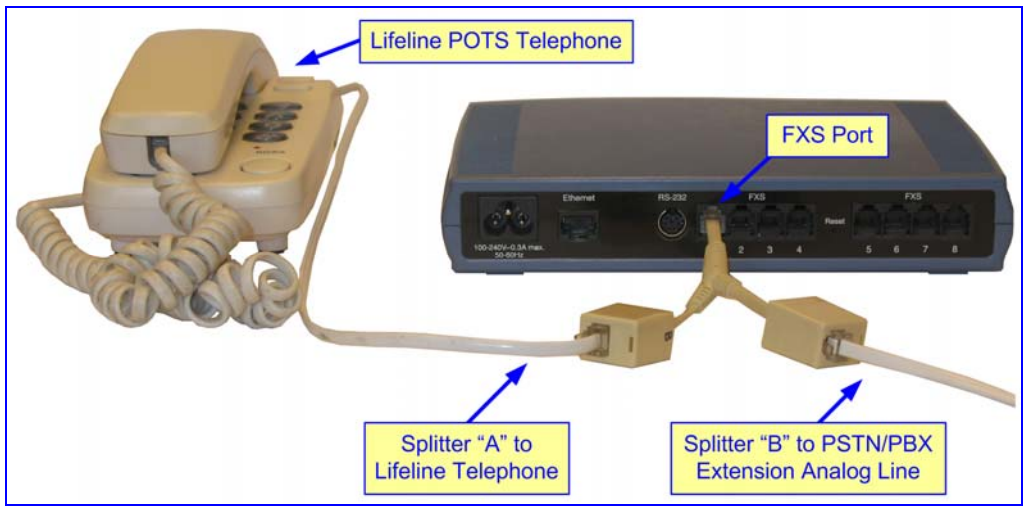
Figure 2-8: RJ-11 Lifeline Splitter Connector Pinouts



➢ To cable the MP-11x/FXS Lifeline:

1. Connect the Lifeline splitter to Port #1 on MP-11x (the Lifeline splitter is a special order option).
2. Connect the Lifeline phone to Port A on the Lifeline splitter.
3. Connect an analog PSTN line to Port B on the Lifeline splitter.

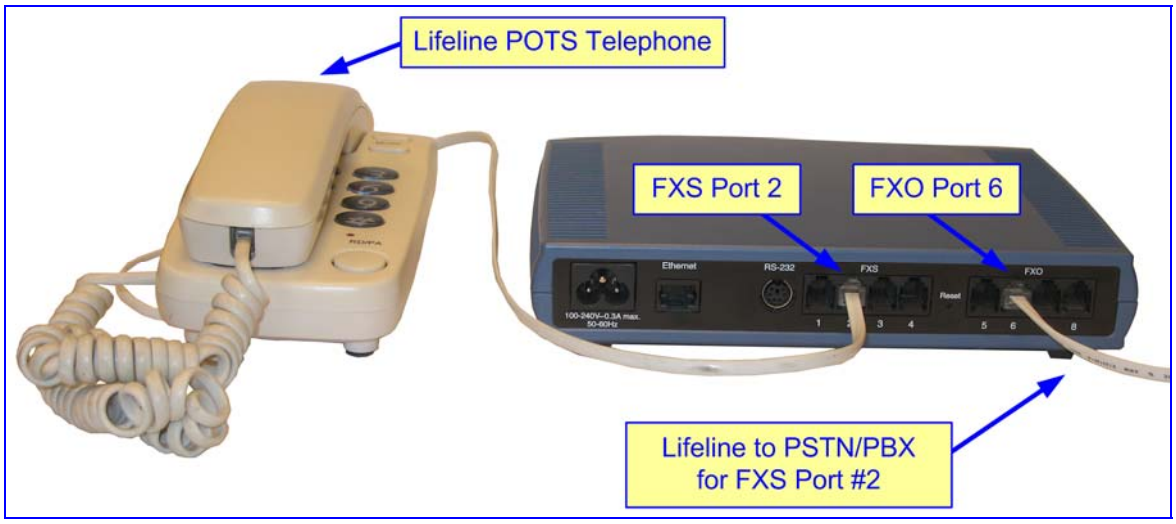
Figure 2-9: Lifeline Cabling (Using Splitter Cable) for FXS-Only Devices



➢ **To cable the combined MP-11x FXS/FXO Lifeline:**

1. Connect a fax machine, modem, or phone to each of the FXS ports.
2. Connect an analog PSTN line to each of the FXO ports.

Figure 2-10: Lifeline Cabling for FXS and FXO Devices



2.1.4.4 Connecting MP-11x RS-232 Port to a PC

Follow the procedure below to connect the MP-11x serial (RS-232) interface to a PC using a straight-through, PS/2 to DB-9 cable adaptor.

Notes:

- This procedure is not applicable to MP-112 as this model does not provide an RS-232 serial interface port.
- The PS/2 to DB-9 cable adaptor is not included in the MP-11x package.

➢ To connect MP-11x to a PC:

1. Connect the PS/2 connector (refer to the figure below for connector pinouts) on one end of the cable to the MP-11x RS-232 port (labeled **RS-232**).
2. Connect the DB-9 connector at the other end of the cable to either the COM1 or COM2 RS-232 communication port on your PC.

Figure 2-11: PS/2 to DB-9 Adaptor Connector Pinouts

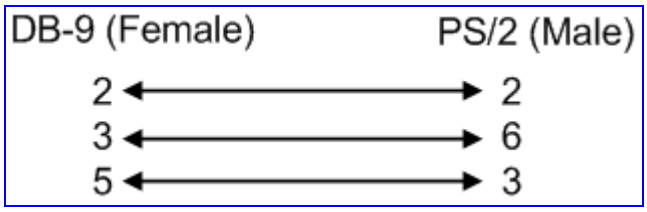
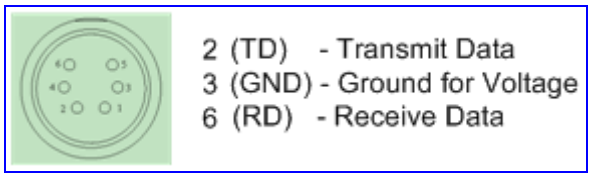


Figure 2-12: PS/2 Connector Pinouts



For information on establishing a serial communications link with MP-11x, refer to 'Assigning an IP Address Using the CLI' on page 41.

2.1.4.5 Connecting MP-11x to Power

The MP-11x is powered from a standard AC electrical outlet.

Warnings:

- The device must be connected only by professional service personnel.
- Ensure that the device connects to an electrical socket outlet that provides protective earthing (grounding). Prior to connecting power, refer to the Regulatory Information document supplied with the device.
- Use only the AC power cord supplied with the device.

➢ To connect MP-11x to the power supply:

- Connect the MP-11x power socket to a standard electrical outlet using the supplied AC power cord.

2.2 Installing MP-124

This subsection describes the MP-124 hardware installation.

2.2.1 Physical Description

The subsections below provide a physical description of the MP-124 front and rear panels.

2.2.1.1 MP-124 Front Panel

The MP-124 front panel (shown in the figure below) provides LEDs for indicating various operating statuses. In addition, the front panel provides a reset button, described in the table below. For a description of the device's LEDs, refer to 'Monitoring Front-Panel LEDs' on page 55.

Figure 2-13: MP-124 Front Panel

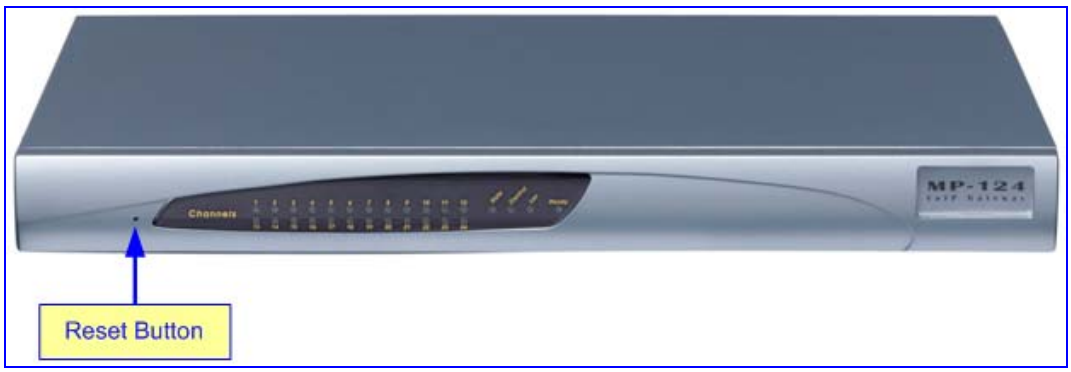


Table 2-4: Reset Button Description on MP-124 Front Panel

Type	Function	Comment
Reset button	Resets MP-124.	Press the reset button with a paper clip or any other similar pointed object, until the device resets.
	Restores MP-124 to factory default values.	Refer to 'Restoring Factory Default Settings' on page 48.

2.2.1.2 MP-124 Rear Panel

The device's rear panel (shown in the figure below) provides the ports for cabling the device to the various interfaces.

Figure 2-14: MP-124 Rear Panel - AC Power Model

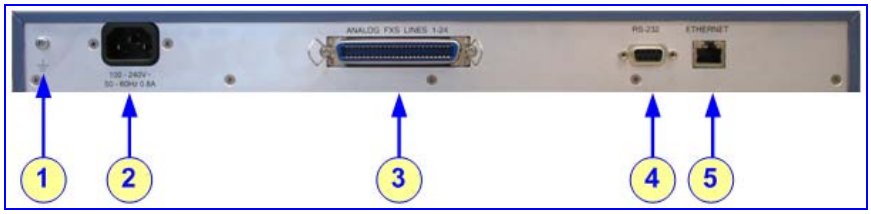
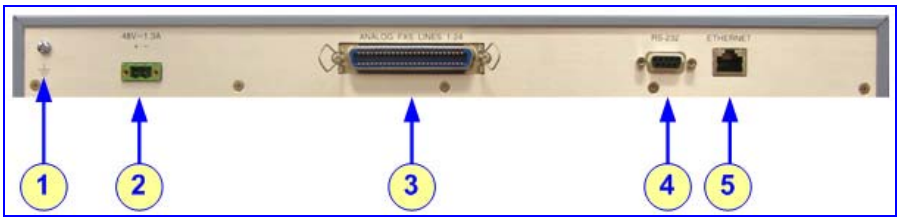


Figure 2-15: MP-124 Rear Panel - DC Power Model



The table below describes the MP-124 rear panel components.

Table 2-5: MP-124 Rear Panel Component Descriptions

Item #	Label	Component Description
1	⏚	Protective earthing screw (mandatory for all installations). Accepts a 6-32 UNC screw.
2	**100-250 V~ 50 - 60 Hz 2A - or - 48V 1.3A**	The MP-124 can be ordered with one of the following power configurations: ▪ **AC power:** provides an AC power supply socket ▪ **DC power:** provides a DC inlet for a DC terminal block
3	**ANALOG FXS LINES 1–24**	50-pin Telco connector for 1-24 analog lines.
4	**RS-232**	9-pin RS-232 port.
5	**ETHERNET**	10/100Base-TX Ethernet RJ-45 port.

The Ethernet LEDs are located within the RJ-45 socket. The table below describes these LEDs.

Table 2-6: MP-124 Rear Panel Ethernet LEDs Description

Label	Type	Color	State	Function
ETHERNET	Ethernet Status	Green	On	Valid 10/100Base-TX Ethernet connection.
		Red	On	Malfunction.

2.2.2 Unpacking and Checking Package Contents

Follow the procedure below for unpacking the carton in which the MP-124 is shipped.

➢ To unpack the MP-124:

1. Open the carton and remove packing materials.
2. Remove the MP-124 unit from the carton.
3. Check that there is no equipment damage.
4. Ensure that in addition to the MP-124 unit, the package contains the following items:
   - AC power cable or an unwired DC terminal block with two crimping screws (depending on ordered model).
   - Two short equal-length brackets and bracket-to-device screws for 19-inch rack installation.
   - Regulatory Information document.
5. Check, retain and process any documents.
6. Notify AudioCodes or your local supplier of any damage or discrepancies.

2.2.3 Mounting the MP-124

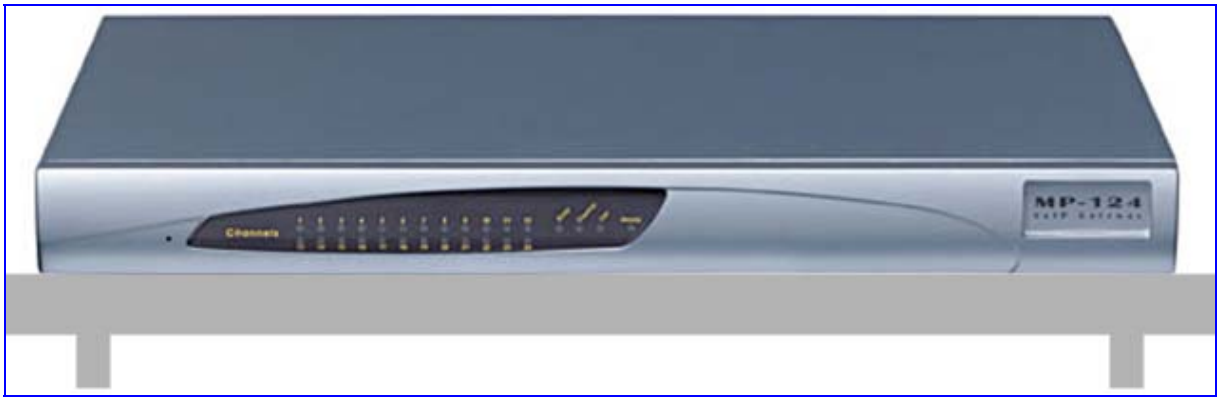
The MP-124 can be mounted in one of the following ways:

- Desktop mounting (refer to 'Desktop Mounting' on page 24).
- Installed in a standard 19-inch rack (refer to '19-inch Rack Mounting' on page 25).

2.2.3.1 Desktop Mounting

For MP-124 desktop mounting, no brackets are required. Simply place MP-124 on a desktop in the required position.

Figure 2-16: MP-124 Desktop Mounting



2.2.3.2 19-inch Rack Mounting

The MP-124 can be installed in a standard 19-inch rack, by using two short, equal-length brackets (supplied). The MP-124 with attached brackets for rack installation is shown in the figure below:

Figure 2-17: MP-124 with Brackets for Rack Installation

Rack Mount Safety Instructions

When installing the chassis in a rack, implement the following safety instructions:

- **Elevated Operating Ambient** - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) of 40°C (104°F).
- **Reduced Air Flow** - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation on the equipment is not compromised.
- **Mechanical Loading** - Mounting of the equipment in the rack should be such that a hazardous condition is not **achieved** due to uneven mechanical loading.
- **Circuit Overloading** - Consideration should be given to the connection of the equipment to the supply circuit **and** the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- **Reliable Earthing** - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips.)

➢ **To install the MP-124 in a 19-inch rack:**

1. Remove the two screws located on one side of the MP-124 (nearest the front panel).
2. Insert the peg on one of the brackets into the third air vent down on the column of air vents nearest the front panel.
3. Swivel the bracket until the holes in the bracket align with the two empty screw holes on the MP-124.
4. Use the supplied screws to attach the bracket to the side of the MP-124.
5. Repeat steps 1 through 4 to attach the second bracket to the other side of the MP-124.
6. Position the MP-124 in the rack and line up the bracket holes with the rack frame holes.
7. Use four standard rack screws (not supplied) to attach the MP-124 to the rack.

2.2.4 Cabling the MP-124

This section describes the MP-124 cabling procedures:

- Grounding (earthing) MP-124 (refer to 'Grounding the MP-124' on page 26).
- Connecting to the Ethernet network (refer to 'Connecting MP-124 to the Ethernet Network' on page 28).
- Connecting to FXS analog lines (refer to 'Connecting MP-124 to FXS Interface' on page 29).
- Serial connection to a computer (refer to 'Connecting MP-124 RS-232 Port to a PC' on page 31).
- Connecting to the power supply (refer to 'Connecting MP-124 to Power' on page 32).

Once you have completed the above hardware installation steps and after powering-up the MP-124, the **Ready** and **LAN** LEDs on the front panel light up green (after a self-testing period of about a minute). Any malfunction in the startup procedure changes the **Ready** LED to red (for details on the MP-124 LEDs, refer to 'Monitoring Front-Panel LEDs' on page 55). Once you have cabled the device, you can begin configuring the device (refer to 'Configuring the Device' on page 35).

2.2.4.1 Power Surge Protection and Grounding of MP-124

This section discusses power surge protection and grounding of MP-124.

Warning:

- Ensure that you connect MP-124 to an electrical socket outlet that provides protective earthing (grounding). Prior to connecting power, refer to the Regulatory Information provided in the *User's Manual*.
- The MP-124 is immune against power surge levels of up to 1 Kilovolts (KV) as required by the following standards: IEC 61000-4-5, EN 55024, and EN 300386.
- For installations where wires are routed outside the building, the Telecommunication site must comply with ETS 300-253 "Earthing and Bonding of Telecommunication Equipment in Telecommunication Centers".
- Power surges above protection levels as required by EN 55024/EN 300386 may cause damage to MP-124.
- MP-124 provides only Secondary Protection against power surges. In deployments where the telephone lines are installed outside, you must install Primary Protection against lightning. Only lightning protectors recommended by AudioCodes must be used - specifically, manufactured by Circa. Failing to install Circa primary surge protectors, failing to comply with the grounding instructions or any other installation instructions, may cause permanent damage to MP-124.
- As most of the installation is the responsibility of the customer, AudioCodes can assume responsibility for damage only if the customer can establish that MP-124 does not comply to the standards specified above (and MP-124 is within the hardware warranty period).

Lightning is the transient passage of electrical current between a cloud and the surface of the earth. Part of the lightning current can be carried inside a building from electrical lines and analog and/or digital telephone lines located outside. This direct injection of lightning current inside a building can cause significant damage to electronic circuits and equipment.

To protect MP-124 from these power surges, the MP-124 must be connected to an external lightning protector. You must use a lightning protector of the type CIRCA 4B1FS-240 manufactured by CircaTelecom (http://www.circatelecom.com). The connection must be made using the terminal fixture of the type CIRCA 2625QC/QC.

This fixture must be connected alongside or within the Main Distribution Frame (MDF). You must connect the grounding connection of this electrical cabinet to the grounding bus of the electrical circuit board, using AWG wires of at least 10mm^2 and maximum length of 3 meters.

The MP-124 must be connected to the power surge protector using minimum 26-AWG wire thickness.

The MP-124 must be installed in the Telecommunication rack. The MP-124 grounding screw must be connected to the equipotential grounding bus bar located in the Telecommunication rack, using a wire of 6mm^2 surface wire. This line must be connected to the equipotential bus bar of the electrical circuit board located in the Telecommunication room, using a stranded cable with surface area of 25 mm^2. The length of this cable must be as short as possible; no longer than 3 meters.

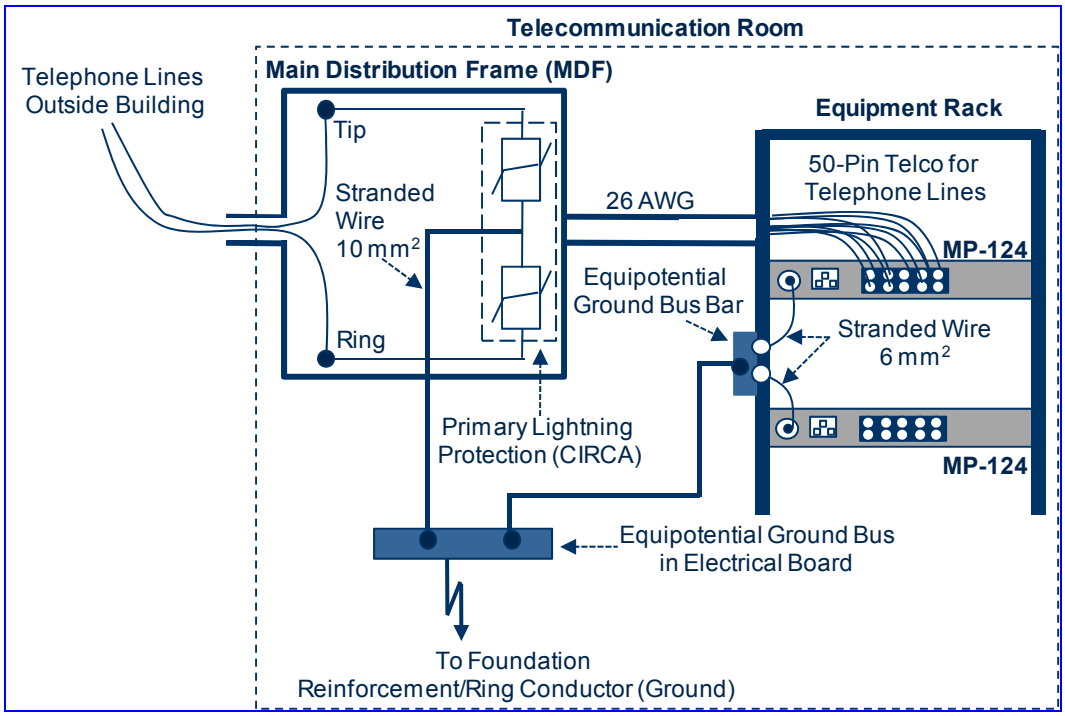
The MP-124 chassis is equipped with a protective earthing screw. Ensure that you connect this to the grounding point using a suitable wire. Fasten the cable securely using a 6-32 UNC screw.

Note: Proper grounding is crucial to ensure the effectiveness of the primary protection devices against power surges. Therefore, both the primary protector and the MP-124 must be connected to the equipotential ground bus (in electrical switch board) that is connected directly to the grounding of the foundation reinforcement conductor.

Before installation, loop-testing grounding measurements must be done by a certified electrician to verify the quality of the grounding connection. The grounding impedance must not exceed 0.5 ohm.

The figure below illustrates the connection method for grounding and lightning protector.

Figure 2-18: Grounding and Power Surge Protection



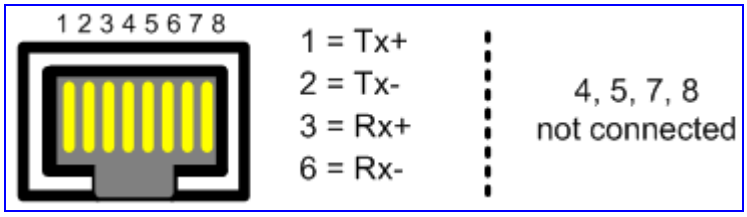
2.2.4.2 Connecting MP-124 to the Ethernet Network

Follow the procedure below for connecting MP-124 directly to the Ethernet network.

➢ **To connect MP-124 directly to the Ethernet network:**

- Using a crossover Ethernet cable with RJ-45 connectors on either end, connect the MP-124 Ethernet port (labeled **ETHERNET**), directly to the network. For RJ-45 connector pinouts, refer to the figure below:

Figure 2-19: RJ-45 Connector Pinouts



Note: When assigning an IP address to the MP-124 using HTTP (refer to 'Assigning an IP Address Using HTTP' on page 36), you may be required to disconnect the Ethernet cable and re-cable it differently.

2.2.4.3 Connecting MP-124 to FXS Interface

The MP-124 interfaces with the analog telephone interfaces by connecting to a main distribution frame (MDF), using a 50-pin Telco cable.

MP-124 Safety Notice

To protect against electrical shock and fire, use a 26 AWG min wire to connect analog FXS lines to the 50-pin Telco connector.

Warning: To reduce noise interference, use a twisted pair Octopus cable that is terminated on a metal-hooded 50-pin Telco connector.

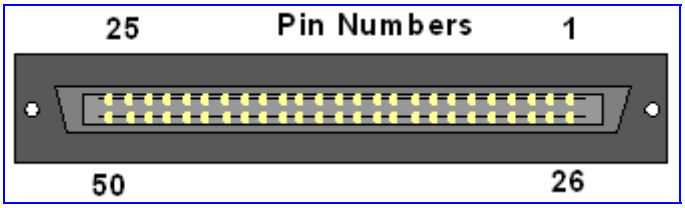
➢ **To connect MP-124 to the FXS telephone interface:**

1. Wire the 50-pin Telco connectors according to the pinouts in the table below:

Table 2-7: Pin Allocations of the 50-pin Telco Connector

Phone Channel	Connector Pins	Phone Channel	Connector Pins
1	1/26	**13**	13/38
2	2/27	**14**	14/39
3	3/28	**15**	15/40
4	4/29	**16**	16/41
5	5/30	**17**	17/42
6	6/31	**18**	18/43
7	7/32	**19**	19/44
8	8/33	**20**	20/45
9	9/34	**21**	21/46
10	10/35	**22**	22/47
11	11/36	**23**	23/48
12	12/37	**24**	24/49

Figure 2-20: 50-pin Telco Connector (MP-124/FXS only)

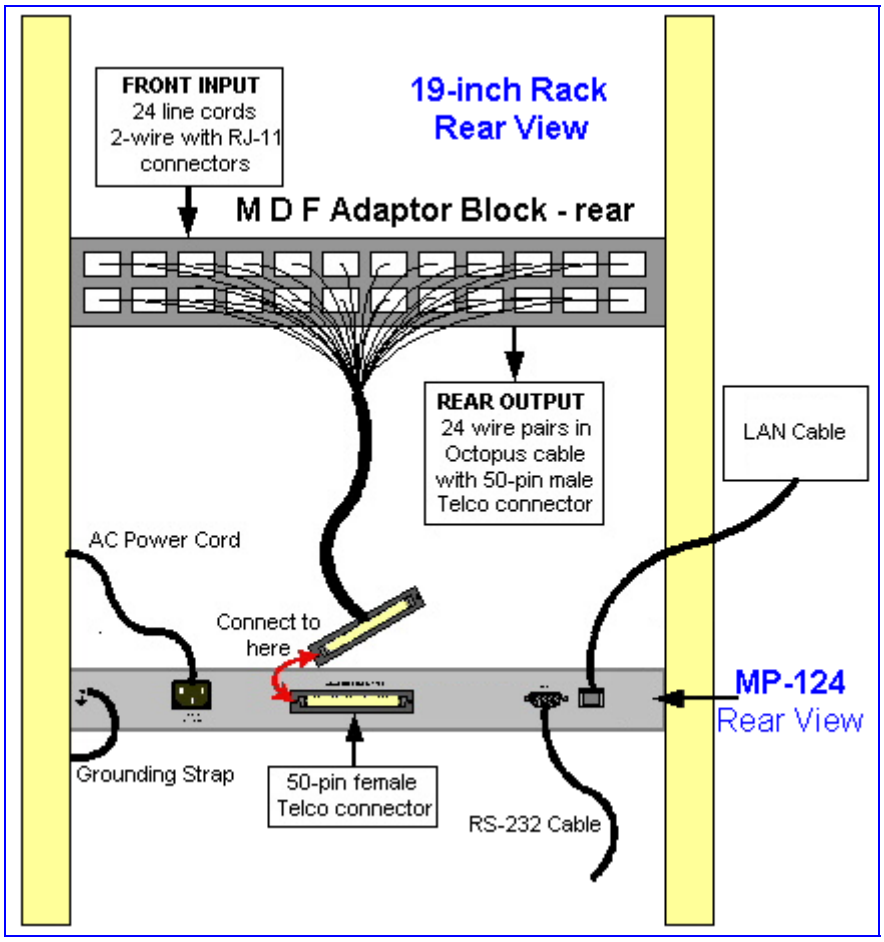


2. Attach each pair of wires from a 25-pair Octopus cable (not supplied) to its corresponding socket on the MDF adaptor block's rear panel.
3. Connect the wire-pairs at the other end of the cable to a male 50-pin Telco connector (not supplied).

4. Insert and fasten the male connector to the female 50-pin Telco connector on the MP-124 rear panel (labeled **Analog FXS Lines 1-24**).

5. Connect the telephone lines from the MDF adaptor block to a fax machine, modem, or telephones by inserting each RJ-11 connector on the 2-wire line cords of the POTS phones into the RJ-11 sockets on the front of an MDF adaptor block, as shown in the figure below.

Figure 2-21: MP-124 in a 19-inch Rack with MDF Adaptor



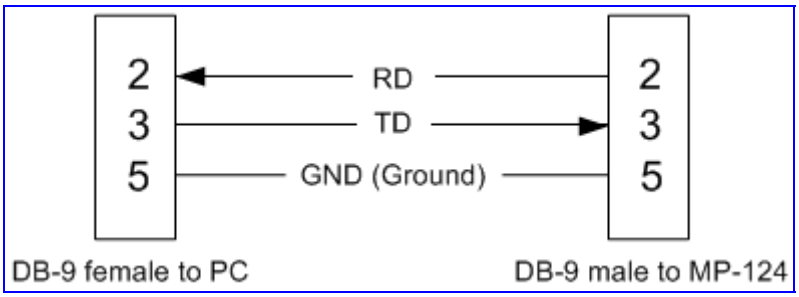
2.2.4.4 Connecting MP-124 RS-232 Port to a PC

Follow the procedure below to connect the MP-124 serial (RS-232) interface to a PC using a standard, straight-through cable with DB-9 connectors on either end.

➢ To connect MP-124 to a PC:

1. Connect the DB-9 connector (refer to the figure below for connector pinouts) on one end of the cable to the MP-124 RS-232 port (labeled **RS-232**).
2. Connect the DB-9 connector (refer to the figure below for connector pinouts) at the other end of the cable to either the COM1 or COM2 RS-232 communication port on your PC.

Figure 2-22: MP-124 RS-232 Connector Pinouts



For information on establishing a serial communications link with the MP-124, refer to 'Assigning an IP Address Using the CLI' on page 41.

2.2.4.5 Connecting MP-124 to Power

The MP-124 can be powered either from a standard AC electrical outlet or a 48-VDC power supply. The power configuration depends on the ordered MP-124 model.

2.2.4.5.1 AC Power Supply

This section describes cabling of the MP-124 model for AC power.

Warnings:

- The device must be connected only by professional service personnel.
- Ensure that the device connects to an electrical socket outlet that provides protective earthing (grounding). Prior to connecting power, refer to the Regulatory Information document supplied with the device.
- Use only the AC power cord supplied with the device.

➢ **To connect MP-124 to the AC power supply:**

■ Connect the MP-124 AC power socket (located on the rear panel) to a standard electrical wall outlet, using the supplied AC power cord.

2.2.4.5.2 DC Power Supply

This section describes cabling of the MP-124 model for 48-VDC power supply.

MP-124 DC Safety Notice

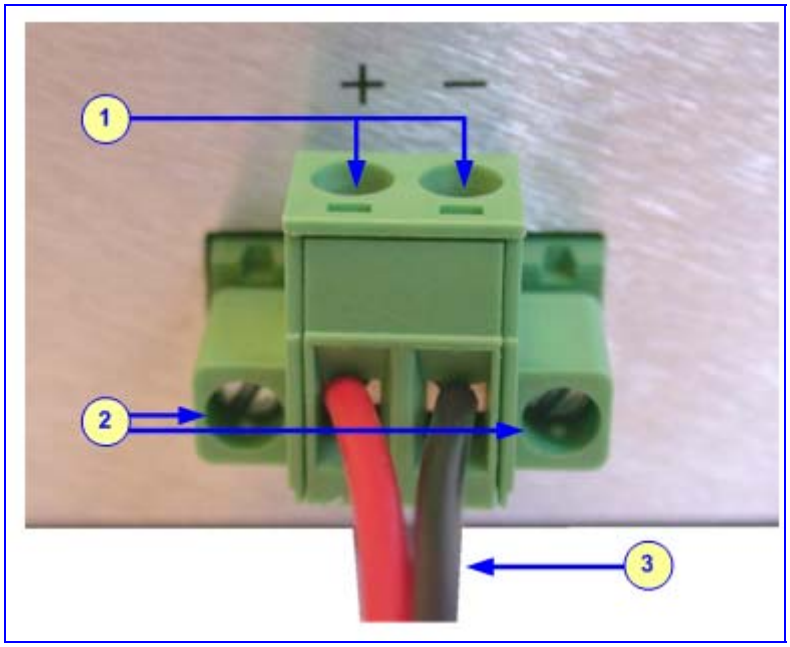
When connecting MP-124 to a DC power supply, ensure that you adhere to the following safety guidelines:

- Connect the device to a safety extra-low voltage (SELV) source that is sufficiently isolated from the mains.
- Connect the device permanently to earth (ground) using the earthing (grounding) stud located on its' rear panel (refer to 'Grounding the MP-124' on page 26).

➢ To connect MP-124 to a DC power supply:

1. Insert two 18 AWG wires into the supplied DC terminal block (ensure correct polarity), and then fasten the two screws located directly above each wire block.
2. Insert the DC terminal block into the DC inlet on the MP-124 rear panel, and then secure it to the device by fastening the two adaptor-to-panel screws located on the terminal block.

Figure 2-23: Wired DC Power Terminal Block Connected to MP-124



Legend:

1. Two integral screws for wire connection to the DC terminal block.
2. Two integral screws for connecting the DC terminal block to the MP-124 DC inlet.
3. Two 18 AWG wires (positive and negative polarity).

3. Connect the other end of the DC cable to a 48-VDC power supply.

3 Configuring the Device

This section describes initial, basic setup configuration for the device, using the device's embedded Web server (*Web interface*).

Notes:

- The device is supplied with application software (cmp file) already residing on its flash memory. This software is set to factory defaults.
- If necessary, you can restore the device to factory defaults (refer to 'Restoring Factory Default Settings' on page 48).

3.1 Assigning an IP Address

This section describes how to change the device's default IP address so that it corresponds with your network environment. The table below lists the device's default IP address.

Table 3-1: Default IP Addresses

Parameter	Default Value
IP Address	▪ FXS and FXS / FXO devices: 10.1.10.10 ▪ FXO device: 10.1.10.11 **Note:** FXO interfaces are applicable only to MP-11x series devices.
Subnet Mask	255.255.0.0
Default Gateway IP Address	0.0.0.0

To assign an IP address to the device, use one of the following methods:

- Device's HTTP-based embedded Web server `accessed using a Web browser (refer to 'Assigning an IP Address Using HTTP' on page 36).
- BootP (refer to 'Assigning an IP Address Using BootP' on page 37).
- Voice Menu using a standard touch-tone telephone connected to one of the FXS analog ports (refer to 'Assigning an IP Address Using the Voice Menu Guidance' on page 38).
- Embedded Command Line Interface (CLI), accessed using RS-232 or Telnet (refer to 'Assigning an IP Address Using the CLI' on page 40).
- Dynamic Host Control Protocol (DHCP) - refer to the *User's Manual*.

Tip: If at a later stage after re-defining the IP address, your IP address is unknown (e.g., forgotten), use the BootP/TFTP utility to access the device (refer to the *Product Reference Manual*).

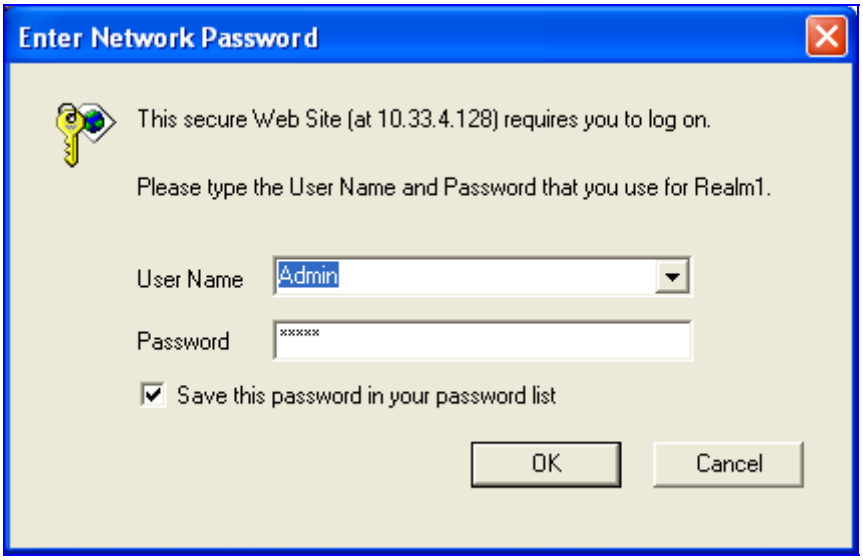
3.1.1 Assigning an IP Address Using HTTP

You can assign an IP address to the device, using the device's Web interface.

➢ **To assign an IP address using HTTP:**

1. Disconnect the device from the network and reconnect it to a PC using one of the following methods:
   - **Using a hub or switch between a PC and the device:** Connect the network interface on your PC to a port on a network hub / switch, using a standard Ethernet cable. Connect the device to another port on the same network hub / switch, using another standard Ethernet cable.
   - **Direct connection between a PC and the device:** Connect the network interface on your PC directly to the device, using an Ethernet crossover cable.
2. Change your PC's IP address and subnet mask to correspond with the device's factory default IP address and subnet mask (for default IP addresses, refer to Assigning an IP Address on page 35).
3. Access the device's Web interface:
   a. Open a standard Web browser application and in the Uniform Resource Locator (URL) field, enter the device's default IP address (e.g., http://10.1.10.10); the Web interface's 'Enter Network Password' dialog box appears, as shown in the figure below:

Figure 3-1: Enter Network Password Screen


Enter Network Password
This secure Web Site (at 10.33.4.128) requires you to log on.
Please type the User Name and Password that you use for Realm1.
User Name
Admin
Password
*****
Save this password in your password list
OK
Cancel

   b. Enter the device's default login, case-sensitive user name ('Admin') and password ('Admin'), and then click **OK**; the Web interface is accessed, displaying the Web interface's 'Home' page.

Note: To prevent unauthorized access to the device, it's recommended that after you initially access the Web interface to change the default login user name and password (refer to Changing the Login User Name and Password on page 45).

4. Change the device's IP address, by performing the following:
   a. Open the 'Multiple Interface Table' page, (**Configuration** tab > **Network Settings** menu > **IP Settings**).
   b. Define the device's IP address, subnet mask, and default Gateway IP address (for "OAMP + Media + Control" application type) so that they correspond to your network IP scheme.
   c. Click **Apply**.
   d. Save your settings to the flash memory and reset the device (refer to 'Saving and Resetting the Device' on page 44).
5. Disconnect your PC from the device or from the hub/switch (depending on the connection method used in Step 1).
6. Reconnect the device and PC (if necessary) to the network.
7. Restore your PC's IP address and subnet mask to their original settings. If necessary, restart your PC and re-access the device via the Web interface with its newly assigned IP address.

3.1.2 Assigning an IP Address Using BootP

You can assign an IP address to the device, using the supplied AudioCodes' BootP/TFTP Server application.

Notes:

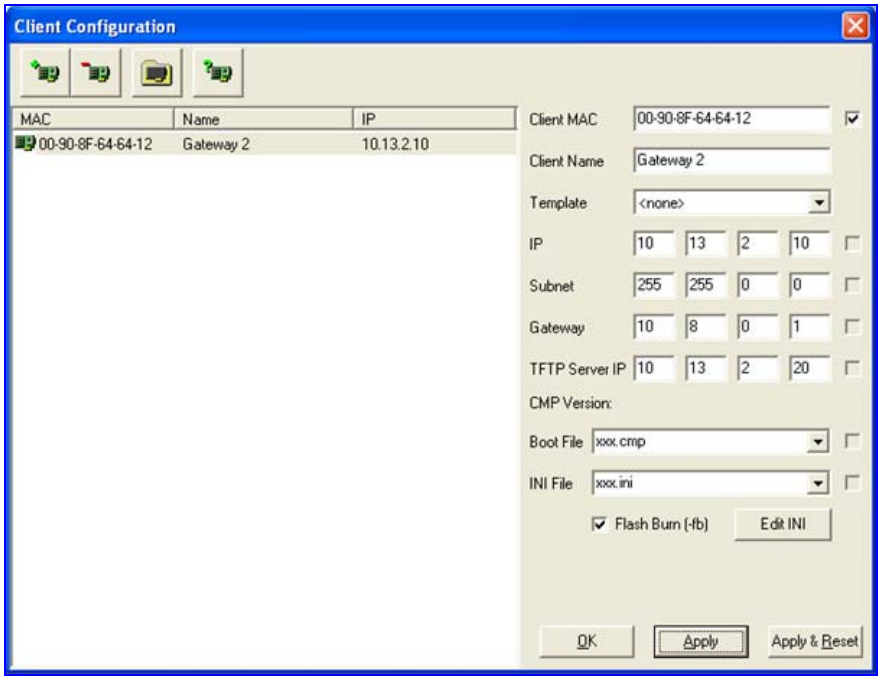
- BootP procedure can also be performed using any standard compatible BootP server.
- For a detailed description of BootP, refer to the *Product Reference Manual.*

➢ To assign an IP address using BootP:

1. Start the BootP application.
2. From the Edit menu, choose **Preferences,** and then in the 'Preferences' dialog box, set the 'Timeout' field to 50.
3. From the Services menu, choose **Clients**; the 'Client Configuration' dialog box appears.
4. Click the **Add New Client** icon; a client with blank parameters is displayed.
5. In the 'Client MAC' field, enter the device's MAC address. The MAC address is printed on the label located on the underside of the device. Ensure that the check box to the right of the field is selected - this enables the client in the BootP tool (if the client is disabled, no replies are sent to BootP requests).
6. In the 'IP' field, enter the IP address (in dotted-decimal notation) that you want to assign to the device.
7. In the 'Subnet' field, enter the subnet mask (in dotted-decimal notation) that you want to assign to the device. Ensure that the subnet mask is valid, otherwise, the device may not function.

8. In the 'Gateway' field, enter the IP address of the default gateway (if any).
9. Click **Apply** to save the new client.
10. Click **OK**; the 'Client Configuration' screen closes.
11. Physically reset the device using the hardware reset button (or power down and then power up the device). This causes the device to use BootP; the device changes its network parameters to the values provided by BootP.

Figure 3-2: BootP Client Configuration Screen



3.1.3 Assigning an IP Address Using the Voice Menu Guidance

Initial configuration of the device can be performed using a standard touch-tone telephone connected to one of the FXS ports. The voice menu can also be used to query and modify basic configuration parameters.

➢ To assign an IP address using the voice menu guidance:

1. Connect a telephone to one of the FXS ports.
2. Lift the handset and dial ***12345** (three stars followed by the digits 1, 2, 3, 4, and 5).
3. Wait for the 'configuration menu' voice prompt to be played.
4. To change the IP address:
   a. Press **1** followed by the pound key (**#**); The current IP address of the device is played.
   b. Press the **#** key.
   c. Dial the new IP address. Use the star (*) key instead of periods (.), e.g., 192*168*0*4, and then press **#** to finish.
   d. Review the new IP address, and then press **1** to save.
5. To change the subnet mask:
   a. Press **2** followed by the **#** key; The current subnet mask of the device is played.

b. Press the **#** key.
c. Dial the new subnet mask (e.g., 255*255*0*0), and then press **#** to finish.
d. Review the new subnet mask, and then press **1** to save.

6. To change the default Gateway IP address:
   a. Press **3** followed by the **#** key; The current default Gateway address is played.
   b. Press the **#** key.
   c. Dial the new default Gateway address (e.g., 192*168*0*1), and then press **#** to finish.
   d. Review the new default Gateway address, and then press **1** to save.
7. Hang up the handset.
8. Access the device's Web interface with the new IP address you assigned.

Alternatively, initial configuration may be performed using an HTTP server, as discussed in the *Product Reference Manual* ('Automatic Update Facility'). The Voice Menu may be used to specify the configuration URL.

➢ To set a configuration URL:

1. Obtain the IP address of the configuration HTTP server (e.g., 36.44.0.6).
2. Connect a telephone to one of the FXS ports.
3. Lift the handset and dial ***12345** (three stars followed by the digits 1, 2, 3, 4, and 5).
4. Wait for the 'configuration menu' voice prompt to be played.
5. Dial **31** followed by the **#** key; the current IP address is played.
6. To change the IP address, perform the following:
   a. Press the **#** key.
   b. Dial the configuration server's IP address. Use the star (*) key instead of dots ("."), e.g., 36*44*0*6, and then press **#** to finish.
   c. Review the configuration server's IP address, and then press **1** to save.
7. Dial **32** followed by the **#** key, and then perform the following to change the configuration file name pattern:
   a. Press the **#** key.
   b. Select one of the patterns listed in the table below (*aa.bb.cc.dd* denotes the IP address of the configuration server):

#	Configuration File Name Pattern	Description
1	http://aa.bb.cc.dd/config.ini	Standard config.ini.
2	https://aa.bb.cc.dd/config.ini	Secure HTTP.
3	http://aa.bb.cc.dd/audiocodes/<MAC>.ini	The device's MAC address is appended to the file name (e.g., http://36.44.0.6/audiocodes/00908f012300.ini).
4	http://aa.bb.cc.dd:8080/config.ini	HTTP on port 8080.
5	http://aa.bb.cc.dd:1400/config.ini	HTTP on port 1400.
6	http://aa.bb.cc.dd/cgi-bin/acconfig.cgi?mac=<MAC>&ip=<IP>	Generating configuration per IP/MAC address dynamically, using a CGI script. See perl example below.

c. Press the selected pattern code, and then press **#** to finish.

8. Press **1** to save, and then hang up the handset. The device retrieves the configuration from the HTTP server.

The following is an example perl CGI script, suitable for most Apache-based HTTP servers for generating configuration dynamically per pattern #6 above. Copy this script to /var/www/cgi-bin/acconfig.cgi on your Apache server and edit it as required:

```
#!/usr/bin/perl
use CGI;
$query = new CGI;
$mac = $query->param('mac');
$ip = $query->param('ip');
print "Content-type: text/plain\n\n";
print "; INI file generator CGI\n";
print "; Request for MAC=$mac IP=$ip\n\n";
print <<"EOF";
SyslogServerIP = 36.44.0.15
EnableSyslog = 1
SSHServerEnable = 1
EOF
```

The table below lists the configuration parameters that can be queried or modified using the voice menu:

Table 3-2: Configuration Parameters Available via the Voice Menu

Item Number at Menu Prompt	Description
1	IP address.
2	Subnet mask.
3	Default Gateway IP address.
4	Primary DNS server IP address.
7	DHCP enable / disable.
31	Configuration server IP address.
32	Configuration file name pattern.
99	Voice menu password (initially 12345). **Note:** The voice menu password can also be changed using the Web interface or *ini* file parameter VoiceMenuPassword (refer to the *User's Manual*).

3.1.4 Assigning an IP Address Using the CLI

You can assign an IP address to the device, using command-line interface (CLI).

Note: The CLI method for assigning an IP address is not applicable to MP-112 as this model does not provide RS-232 serial interface.

➢ **To assign an IP address via the CLI:**

1. Connect the device's RS-232 port to either COM1 or COM2 communication port on your PC (for MP-11x, refer to "Connecting the MP-11x RS-232 Port to Your PC" on page 20; for MP-124, refer to "Connecting the MP-124 RS-232 Port to Your PC" on page 31).
2. Use a serial communication software (e.g., HyperTerminal™) to establish a serial communication link with the device, using the following communications port settings:
   - **Baud Rate:** 9,600 bps for MP-11x; 115,200 bps for MP-124
   - **Data Bits:** 8
   - **Parity:** None
   - **Stop Bits:** 1
   - **Flow Control:** None

   The CLI prompt appears.
3. At the prompt, type **`conf`**, and then press <Enter>; the configuration folder is accessed.
4. To view the current network parameters, at the prompt, type **`GCP IP`**, and then press <Enter>; the current network settings are displayed.
5. Change the network settings by typing the following:

   `SCP IP` `[ip_address] [subnet_mask] [default_gateway]`

   For example,

   `SCP IP` `10.13.77.7 255.255.0.0 10.13.0.1`

   The new settings take effect on-the-fly and connectivity to the device is active at the new IP address.
   Note: This command requires you to enter all three network parameters (each separated by a space).
6. To save the configuration, at the prompt, type **`SAR`**, and then press <Enter>; the device restarts with the new network settings.

3.2 Configuring Basic SIP Parameters

Once you have completed the previous sections, you are ready to start configuring the device using the Web interface. For information on how to fully configure the device, refer to the device's *User's Manuals*.

Tip: Once the device is configured, backup your settings by saving the configuration (*ini*) file to your PC. This saved file can later be used, if necessary, to restore configuration settings (refer to 'Backing Up and Restoring Configuration' on page 47).

➢ To configure basic SIP parameters:

1. Access the Web interface.
2. Select the voice coders used by the device that best suits your VoIP network in the 'Coders Table' page (**Configuration** tab > **Protocol Configuration** menu > **Coders And Protocol Definitions** submenu > **Coders**).
3. When operating with a Proxy server, perform the following (otherwise, skip to Step 4):
   a. In the 'Proxy & Registration' page (**Configuration** tab > **Protocol Configuration** menu > **Proxies, Registration, IP Groups** submenu > **Proxy & Registration**):
      - Set the 'Use Default Proxy' field to "Yes".
      - (Optional) In the 'Proxy Name' field, enter the Proxy's name. The Proxy name replaces the Proxy IP address in all SIP messages. This means that messages are still sent to the physical Proxy IP address, but the SIP URI contains the Proxy name instead.
      - To enable the device to register to a Proxy/Registrar server (at power up and every user-defined interval - 'Registration Time' parameter), set the 'Enable Registration' parameter to "Enable".

   b. In the 'Proxy Sets Table' page (**Configuration** tab > **Protocol Configuration** menu > **Proxies, Registration, IP Groups** submenu > **Proxy Sets Table**), define the IP address(s) of the Proxy server(s). When no Proxy is used, the internal routing table is used to route the calls.
4. Enable the device's endpoints in the 'Endpoint Phone Number Table' page (**Configuration** tab > **Protocol Configuration** menu > **Endpoint Number** submenu > **Endpoint Phone Number**).
5. If a Proxy server is not implemented, map outgoing calls to IP addresses in the 'Outbound IP Routing Table' page (**Configuration** tab > **Protocol Configuration** menu > **Routing Tables** submenu > **Tel to IP Routing**).
6. Save your settings to the flash memory and reset the device (refer to 'Saving and Resetting the Device' on page 44).

3.2.1 Enabling Channels and Configuring Call Routing (Example)

This section provides an example for enabling the device's channels and for configuring Tel (PSTN)-to-IP call routing. This includes assigning the channels a telephone number and then routing calls (e.g., of dialed numbers with prefix 10) from these channels to a specific IP destination (e.g., IP address 10.33.24.14).

➢ **To enable channels and configure call routing:**

1. Assign telephone numbers to endpoints, by performing the following:
   a. Open the 'Endpoint Phone Number Table' page (**Configuration** tab > **Protocol Configuration** menu > **Endpoint Number** submenu > **Endpoint Phone Number**).

Figure 3-3: Enabling Channels in Endpoint Phone Number Table Page

	Channel(s)	Phone Number	Hunt Group ID	Tel Profile ID
1	1-8	101		0
2				

   b. In the 'Channel(s)' column, enter 1-8 (i.e., channels 1 through 8), and then in the 'Phone Number' column, enter the phone number (e.g., 101) for the first channel. Phone numbers 102, 103, 104 and so on are sequentially assigned to subsequent channels (i.e., 2 through 8).
   c. Click **Submit**.
2. Configure routing of telephone calls (i.e., Tel) to an IP destination (i.e., IP address):
   a. Open the 'Tel to IP Routing Table' page (**Configuration** tab > **Protocol Configuration** menu > **Routing Tables** submenu > **Tel to IP Routing**).

Figure 3-4: Tel to IP Routing Rules

	Src. Trunk Group ID	Dest. Phone Prefix	Source Phone Prefix	->	Dest. IP Address	
	*	10	*		10.33.24.14	

   b. In the 'Dest. Phone Prefix' column, enter "10" (i.e., prefix of dialed number).
   c. In the 'Source Phone Prefix' column, enter the prefix of the channel's telephone number as defined in Step 1.
   d. In the 'Dest. IP Address' column, enter 10.33.24.14 (i.e., calls are sent to this IP address).
   e. Click **Submit**.

Therefore, any call whose dialed number prefix matches the value in the 'Dest. Phone Prefix' column (i.e., 10) and whose source phone number prefix matches the value in the 'Source Phone Prefix' column is sent to the IP address defined in the 'Dest. IP Address' column.

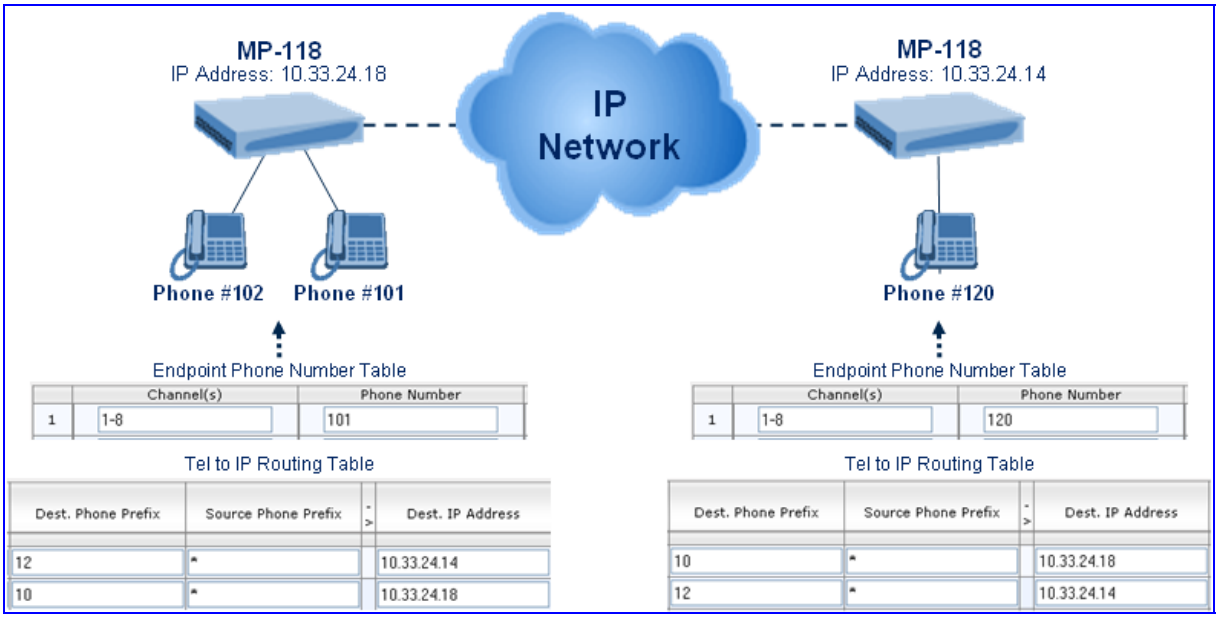
The figure below shows an example of a configuration setup of two communicating FXS devices. Phones '101' and '102' are connected to the first two channels of device with IP address 10.33.24.18; phone '120' is connected to the first channel of device 10.33.24.14. The configuration in the 'Endpoint Phone Number Table' and 'Tel to IP Routing Table' pages (refer to the figure below) enables calls to be made between these two devices as well as between phones connected to the same device.

To make a call between the two devices, off-hook phone '101', and at the dial tone, dial '120'. To make a call between the two phones connected to device 10.33.24.18, off-hook phone '101', and at the dial tone, dial '102' (or vice versa).

Notes:

- The prefixes entered in the 'Tel to IP Routing Table' must differentiate the devices from each other to ensure correct routing. In the example, using the first digit (i.e., 1) doesn't differentiate the devices, therefore, two digits of the phone number are used.
- To enable phones connected to the same device to communicate with each other, define in the 'Tel to IP Routing Table' the IP address and corresponding phone numbers of the device itself.

Figure 3-5: Connecting Two Devices



3.3 Saving and Resetting the Device

To apply configuration changes to the device's volatile memory (RAM), click the **Submit** button located on the page in which you are configuring. Modifications to parameters with on-the-fly capabilities are immediately applied to the device; other parameters are applied only after a device reset. However, parameters saved to the volatile memory revert to their previous settings after a hardware or software reset (or if the device is powered down). Therefore, to ensure that all parameter changes (whether on-the-fly or not) are retained, you need to save ('burn') them to the device's non-volatile memory (i.e., flash).

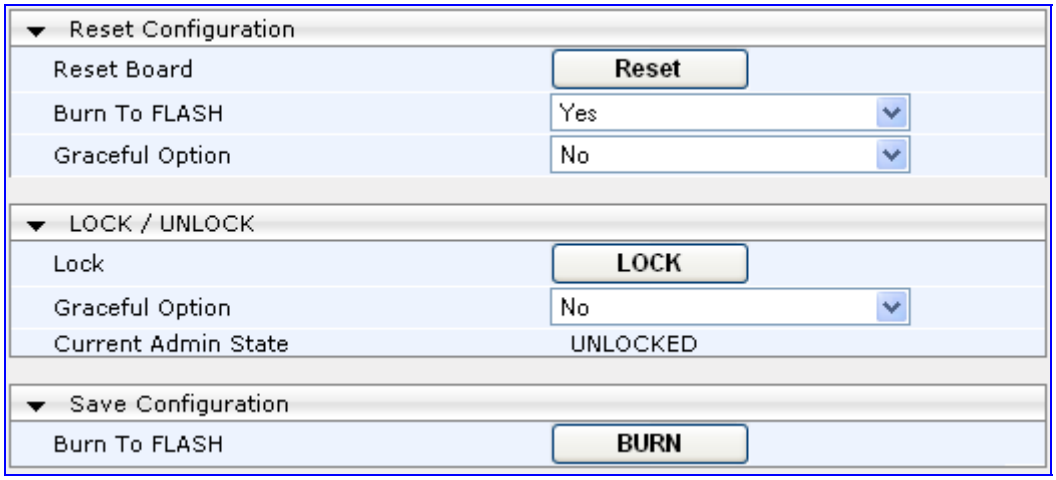
You can also "gracefully lock" the device so that no new calls are allowed and existing calls are terminated only after a user-defined period. This is useful when, for example, you are uploading new software files to the device and you don't want to disrupt existing traffic.

Note: Parameters preceded by the lightning sign are not changeable on-the-fly and require a device reset.

➢ To save parameters to flash memory and reset the device:

1. On the toolbar, click **Device Actions**, and then from the drop-down list, choose **Reset**; the 'Maintenance Actions' page appears.

Figure 3-6: Maintenance Actions Page



2. Under the 'Reset Configuration' group, ensure that 'Yes' is selected in the 'Burn to FLASH' drop-down list.
3. (Optional) To gracefully lock the device, click the **LOCK** button, from the 'Graceful Option' drop-down list select 'Yes', and then define the time (in seconds) after which the device locks.
4. Click the **Reset** button.

3.4 Changing Login User Name and Password

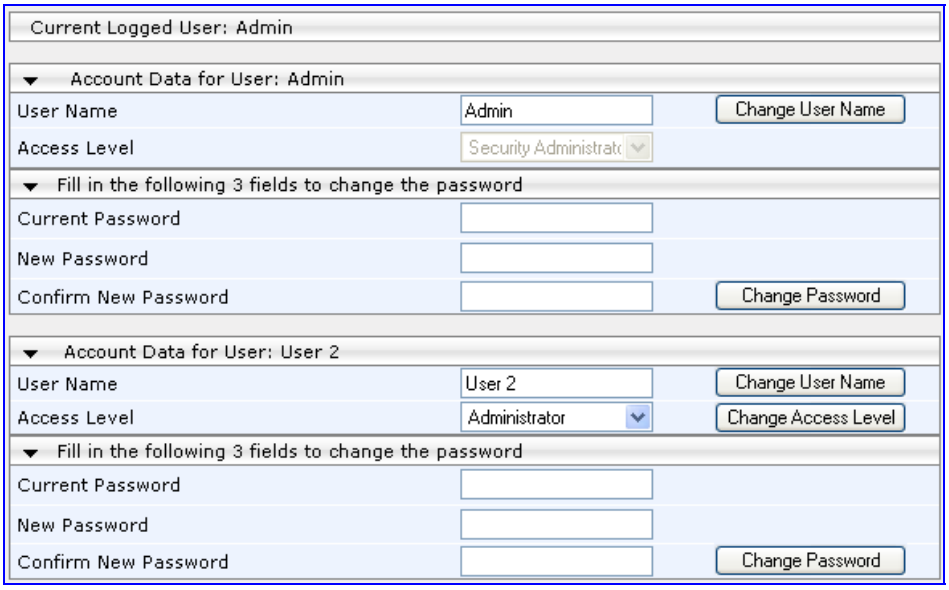
To prevent unauthorized access to the Web interface, two Web user accounts (login accounts) are available (primary and secondary) with assigned user name and password. For detailed information on the Web user accounts, refer to the device's *User's Manual*.

Tip: If you do not know your user name and password, you can use AudioCodes BootP/TFTP utility to access the device, by re-flash the load and resetting the password (refer to the *Product Reference Manual*).

➢ To change the login user name and password:

1. Open the 'WEB User Accounts' page (**Configuration** tab > **Security Settings** menu > **WEB User Accounts**).

Figure 3-7: WEB User Accounts Page (for Users with 'Security Administrator' Privileges)



2. To change the user name, perform the following:
   a. In the 'User Name' field, enter the new user name (maximum of 19 case-sensitive characters).
   b. Click **Change User Name**; the new user name is applied and the 'Enter Network Password' screen appears.
   c. In the 'Enter Network Password' screen, enter the new user name.
3. To change the password, perform the following:
   a. In the 'Current Password' field, enter the current password (maximum of 19 case-sensitive characters).
   b. In the 'New Password' and 'Confirm New Password' fields, enter the new password.
   c. Click **Change Password**; the new password is applied and the 'Enter Network Password' screen appears. In the 'Enter Network Password' screen, enter the new password.

3.5 Backing Up and Restoring Configuration

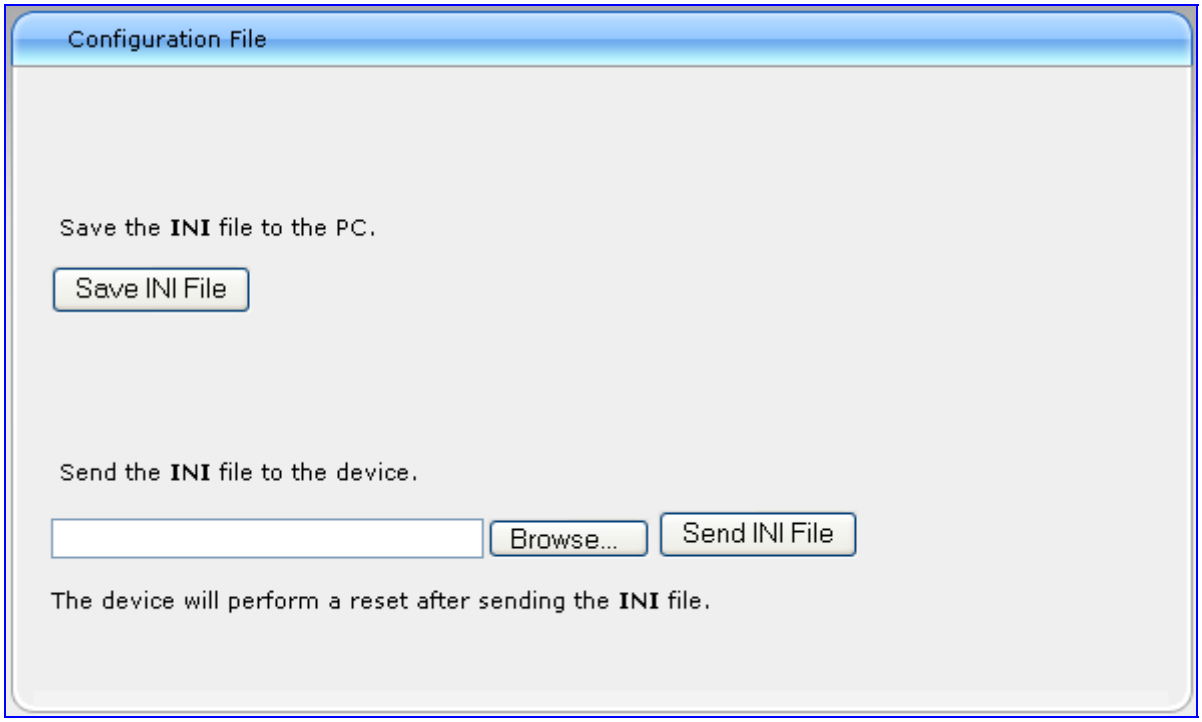
You can save a copy/backup of the device's current configuration settings as an *ini* file to a folder on your PC, using the 'Configuration File' page. The saved *ini* file includes only parameters that were modified and parameters with other than default values. The 'Configuration File' page also allows you to load an *ini* file to the device. If the device has "lost" its configuration, you can restore the device's configuration by loading the previously saved *ini* file or by simply loading a newly created *ini* file.

Note: When loading an *ini* file using this Web page, parameters not included in the *ini* file are reset to default settings.

➢ To save and restore the *ini* file:

1. Open the 'Configuration File' page (**Management** tab > **Software Update** menu > **Configuration File**).

Figure 3-8: Configuration File Page


Configuration File
Save the INI file to the PC.
Save INI File
Send the INI file to the device.
Browse...
Send INI File
The device will perform a reset after sending the INI file.

2. To save the *ini* file to a folder on your PC, perform the following:
   a. Click the **Save INI File** button; the 'File Download' dialog box appears.
   b. Click the **Save** button, navigate to the folder in which you want to save the *ini* file on your PC, and then click **Save**; the device copies the *ini* file to the selected folder.

➢ To load (or restore) the ini file:

1. Click the **Browse** button, navigate to the folder in which the *ini* file is located, select the file, and then click **Open**; the name and path of the file appear in the field beside the **Browse** button.
2. Click the **Load INI File** button, and then at the prompt, click **OK;** the device uploads the *ini* file and then resets (from the *cmp* version stored on the flash memory). Once complete, the 'Enter Network Password' dialog box appears, requesting you to enter your user name and password.

3.6 Restoring Factory Default Settings

You can use the device's hardware Reset button to restore all the device's configuration settings to factory defaults, including the device's IP address and Web interface's login user name and password. These default settings include factory defaults as well as user-defined defaults (refer to the device's *User's Manual*).

Notes:

- The device resets to the software version (*cmp* file) saved on its flash memory.
- For additional methods to restore default settings, refer to the *User's Manual*.

➢ To restore the MP-124 to factory default settings:

- With a paper clip or any other similar pointed object, press and hold down the Reset button (located on the front panel) for at least 12 seconds (but no more than 25 seconds); the device restores to factory default settings.

➢ To restore MP-11x to factory default settings:

1. Disconnect the Ethernet cable from the device.
2. With a paper clip or any other similar pointed object, press and hold down the Reset button (located on the rear panel) for about six seconds; the **Fail** LED turns red and the device restores to factory default settings.
3. When the **Fail** LED turns off, reconnect the Ethernet cable to the device.

3.7 Upgrading the Device

You can upgrade the device with the following files, using the device's Web interface:

- Firmware (*cmp*) file using the Web interface's Software Update Wizard (refer to 'Software Upgrade Wizard' on page 49).
- Auxiliary and *ini* files using the 'Load Auxiliary Files' page (refer to 'Upgrading the ini and Auxiliary Files' on page 52).

Note: When upgrading the firmware (*cmp*), you can also use the Software Update Wizard to load the *ini* and auxiliary files.

3.7.1 Software Upgrade Wizard

The Software Upgrade Wizard allows you to easily upgrade the device's firmware (cmp file) as well as load an *ini* file and/or auxiliary files (e.g., Call Progress Tones). However, it is mandatory, when using the wizard to first load a *cmp* file to the device. You can then choose to also load an *ini* file and/or auxiliary files, but this cannot be pursued without first loading an *cmp* file. For the *ini* and each auxiliary file type, you can choose to load a new file, or not load a file, but use the existing file (i.e., maintain existing configuration) running on the device.

The Software Upgrade Wizard allows you to load the following files:

- **cmp:** (Mandatory) compressed firmware file
- **ini:** (Optional) Configuration file
- **Auxiliary files:** (Optional) CPT (Call Progress Tone), PRT (Prerecorded Tones), and USERINF (User Info)

Warnings:

- To preserve all configuration settings, before upgrading the device to a new major software version (e.g., from version 5.8 to 6.0), save a copy of the device's configuration settings (i.e., *ini* file) to your PC and ensure that you have all the original auxiliary files currently used by the device. After you have upgraded the device, restore your configuration settings by uploading these files to the device. For backing up and restoring configuration, refer to 'Backing Up and Restoring Configuration' on page 47.
- The Software Upgrade Wizard requires the device to be reset at the end of the process, which may disrupt traffic. To avoid this, disable all traffic on the device before initiating the wizard, by performing a graceful lock (refer to 'Saving and Resetting the Device' on page 44).

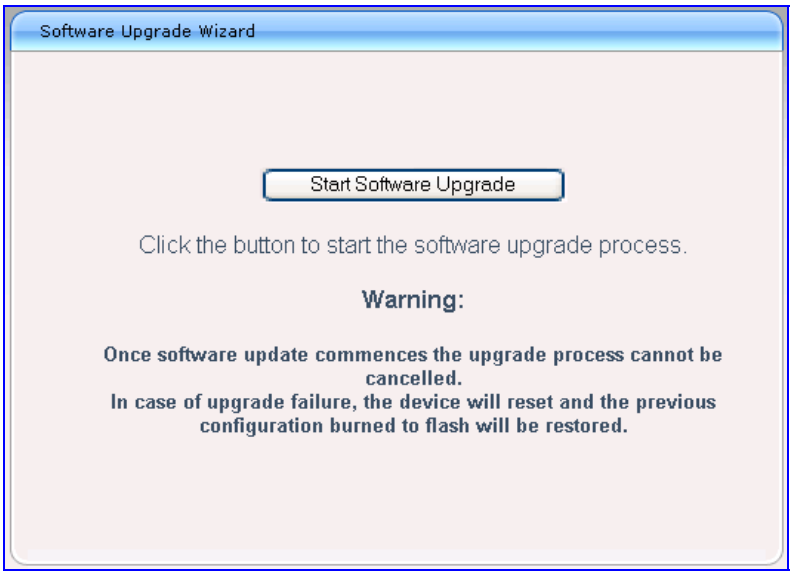
Notes:

- Before you can load an *ini* or auxiliary file, you must first load a *cmp* file.
- When you activate the wizard, the rest of the Web interface is unavailable. After the files are successfully loaded, access to the full Web interface is restored.
- You can schedule automatic loading of these files using HTTP, HTTPS, FTP, or NFS (refer to the *Product Reference Manual*).

➢ To use the Software Upgrade Wizard:

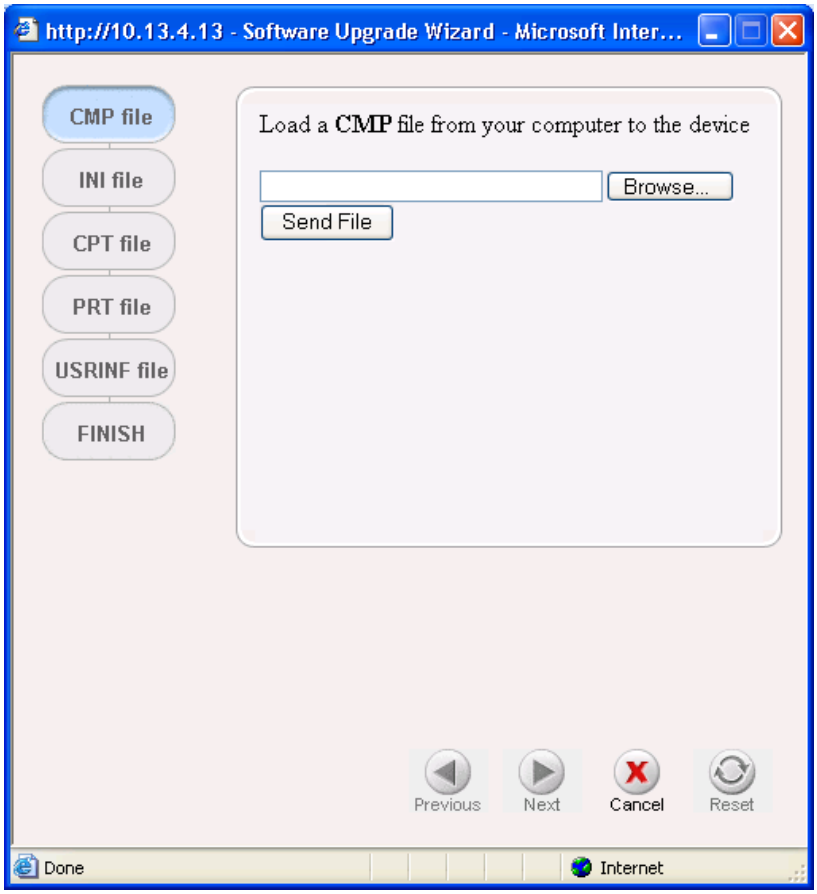
1. Stop all traffic on the device (refer to the note above).
2. Open the 'Software Upgrade Wizard' (**Management** tab > **Software Update** menu > **Software Upgrade Wizard**); the 'Software Upgrade Wizard' page appears.

Figure 3-9: Start Software Upgrade Wizard Screen


Software Upgrade Wizard
Start Software Upgrade
Click the button to start the software upgrade process.
Warning:
Once software update commences the upgrade process cannot be cancelled.
In case of upgrade failure, the device will reset and the previous configuration burned to flash will be restored.

3. Click the **Start Software Upgrade** button; the 'Load a CMP file' Wizard page appears.

Figure 3-10: Load CMP File Wizard Page

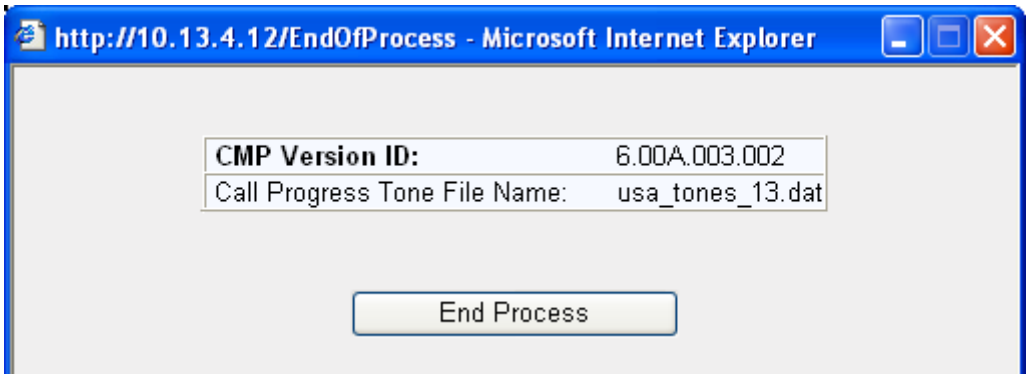


Note: At this stage, you can quit the Software Update Wizard, by clicking **Cancel**, without requiring a device reset. However, once you start uploading a cmp file, the process must be completed with a device reset.

4. Click the **Browse** button, navigate to the *cmp* file, and then click **Send File**; the *cmp* file is loaded to the device and you're notified as to a successful loading.
5. Click one of the following buttons:
   - **Reset**; the device resets with the newly loaded *cmp,* utilizing the existing configuration and auxiliary files.
   - **Next**; the 'Load an *ini* File' wizard page opens.

   Note that as you progress by clicking **Next**, the relevant file name corresponding to the applicable Wizard page is highlighted in the file list on the left.
6. In the 'Load an *ini* File' page, you can now choose to either:
   - Click **Browse**, navigate to the *ini* file, and then click **Send File**; the *ini* file is loaded to the device and you're notified as to a successful loading.
   - Use the *ini* file currently used by the device, by not selecting an *ini* file and by ensuring that the 'Use existing configuration' check box is marked (default).
   - Return the device's configuration settings to factory defaults, by not selecting an *ini* file and by clearing the 'Use existing configuration' check box.
7. You can now choose to either:
   - Click **Reset**; the device resets, utilizing the new *cmp* and *ini* file you loaded up to now as well as utilizing the other auxiliary files.
   - Click **Back**; the 'Load a *cmp* file' page is opened again.
   - Click **Next**; the next page opens for loading the next consecutive auxiliary file listed in the Wizard.
8. For loading the auxiliary files, follow the same procedure as for loading the *ini* file (Step 6).
9. In the 'FINISH' page, complete the upgrade process by clicking **Reset;** the device 'burns' the newly loaded files to flash memory and then resets the device. After the device resets, the 'End Process' screen appears displaying the burned configuration files (refer to the figure below).

Figure 3-11: End Process Wizard Page


http://10.13.4.12/EndOfProcess - Microsoft Internet Explorer
CMP Version ID: 6.00A.003.002
Call Progress Tone File Name: usa_tones_13.dat
End Process

10. Click **End Process** to close the wizard, and then in the 'Enter Network Password' dialog box, enter your login user name and password (described in Accessing the Web Interface) and click **OK**; a message box appears informing you of the new CMP file.
11. Click **OK**; the Web interface now becomes active and reflecting the upgraded device.

3.7.2 Loading ini and Auxiliary Files

The auxiliary files (and *ini* file) are *dat* files that can be loaded to the device to provide enhanced device provisioning. These files are described in the table below. For detailed information on these files, refer to the device's *User's Manual*.

Table 3-3: Auxiliary Files Descriptions

File Type	Description
ini	Provisions the device's parameters. The Web interface enables practically full device provisioning, but customers may occasionally require new feature configuration parameters, in which case this file is loaded. **Note:** Loading the *ini* file only provisions those parameters that are included in the *ini* file. Parameters not specified in the *ini* file are reset to factory default values.
Dial Plan	Dial plan file.
Call Progress Tones	This is a region-specific, telephone exchange-dependent file that contains the Call Progress Tones (CPT) levels and frequencies that the device uses. The default CPT file is: U.S.A.
Prerecorded Tones	The *dat* PRT file enhances the device's capabilities of playing a wide range of telephone exchange tones that cannot be defined in the Call Progress Tones file.
User Info	The User Information file maps PBX extensions to IP numbers. This file can be used to represent PBX extensions as IP phones in the global 'IP world'.

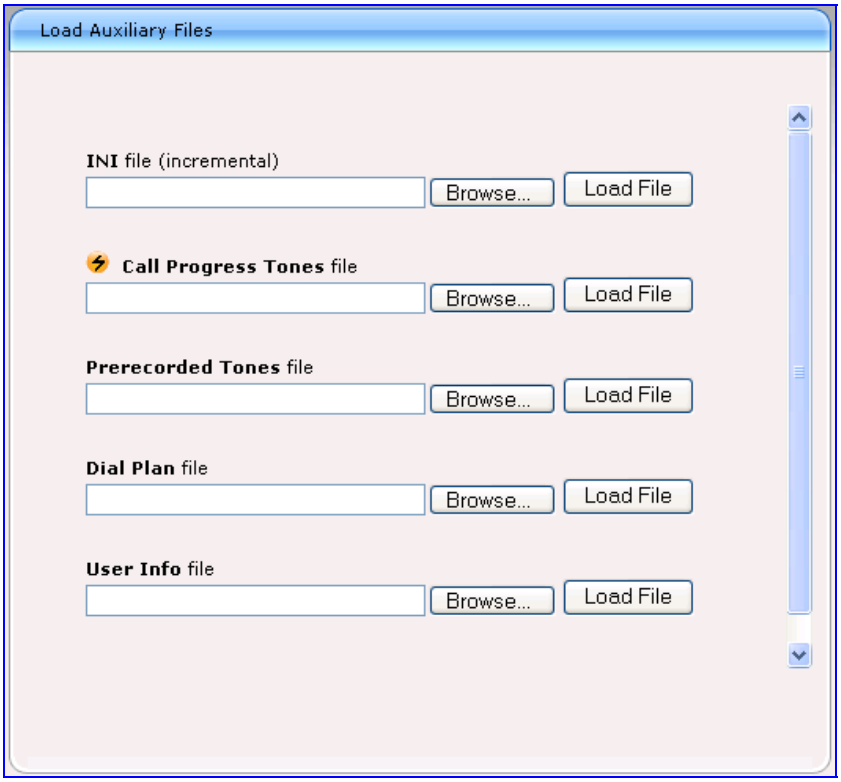
Notes:

- The current settings of parameters that are not included in the *ini* file are retained (*incremental*).
- After loading the *ini* file, the device does not reset. Some files (e.g., Call Progress Tones) are not changeable on-the-fly and require a device reset.
- Saving an auxiliary file to flash memory may disrupt traffic on the device. To avoid this, disable all traffic on the device, by performing a graceful lock (refer to 'Saving and Resetting the Device' on page 44).
- You can also use BootP to load the auxiliary files to the device (refer to the *Product Reference Manual*).

➢ To load an auxiliary file to the device:

1. Open the 'Load Auxiliary Files' page (**Management** tab > **Software Update** menu > **Load Auxiliary Files**).

Figure 3-12: Load Auxiliary Files Page



2. Click the **Browse** button corresponding to the file type that you want to load, navigate to the folder in which the file is located, and then click **Open**; the name and path of the file appear in the field next to the **Browse** button.
3. Click the **Load File** button corresponding to the field that contains the file you want to load.
4. Save to flash memory and reset (if required) the device (refer to 'Saving and Resetting the Device' on page 44).

Reader's Notes

4 Monitoring the Device

The operating status of the device can be monitored in the following ways:

- Monitoring the device's hardware front-panel LEDs (refer to 'Front-Panel LEDs' on page 55).
- Monitoring the device using the Web interface (refer to 'Web Interface' on page 56).

4.1 Front-Panel LEDs

The operating status LEDs on the front panel of the device are described in the tables below:

Table 4-1: MP-11x Front-Panel LEDs Description

LED	Type	Color	State	Definition
Channels Status	Telephone Interface	Green	Blinking	Phone is ringing (incoming call, before answering).
			Fast Blinking	Line malfunction.
			On	Off-hook or ringing.
		-	Off	Normal on-hook position.
Uplink	Ethernet Link Status	Green	On	Valid 10/100Base-TX Ethernet connection.
		-	Off	No uplink.
Fail	Failure Indication	Red	On	Failure (fatal error) or system initialization.
		-	Off	Normal working condition.
Ready	Device Status	Green	On	Device powered, self-test OK.
		-	Off	Software loading or system failure.
Power	Power Supply Status	Green	On	Power is received by the device.
		-	Off	Failure / disruption in the AC power supply or power is currently not being supplied to the device through the AC power supply entry.

Table 4-2: MP-124 Front-Panel LEDs Description

Label	Type	Color	State	Function
Ready	Device Status	Green	On	Device powered on, self-test OK.
		Orange	Blinking	Software loading/initialization.
		Red	On	Malfunction.
LAN	Ethernet Link Status	Green	On	Valid 10/100Base-TX Ethernet connection.
		Red	On	Malfunction.
Control	Control Link	Green	Blinking	Sending and receiving Protocol (SIP) messages.
		-	-	No traffic.

Label	Type	Color	State	Function
Data	Packet Status	Green	Blinking	Transmitting RTP packets.
		Red	Blinking	Receiving RTP packets.
		-	-	No traffic.
Channels	Telephone Interface	Green	On	Off-hook or ringing.
		Red	On	Line malfunction.
		-	-	Normal.

4.2 Web Interface

The Web interface's 'Home' page provides a graphical display of the device's front panel, displaying color-coded icons depicting the status of the device's ports and channels, as well as other interfaces of the device. In addition, the 'Home' page allows you quick access to viewing active alarms.

4.2.1 Viewing Alarms

The 'Home' page allows you quick access to the 'Active Alarms' page (typically accessed from the **Status & Diagnostics** tab > **Status & Diagnostics** menu > **Active Alarms**). This page lists all the device's current alarms.

➢ To view a list of current alarms:

- In the 'Home' page, click the area labeled **Alarms**; the 'Active Alarms' page appears:

Figure 4-1: Current Alarms in Active Alarms Page

For each listed alarm, the following information is displayed:

- **Severity:** severity level of the alarm:
  - Critical (displayed in red)
  - Major (displayed in orange)
  - Minor (displayed in yellow)
  - No alarm (displayed in green)
- **Source:** element from which the alarm was generated
- **Description:** brief explanation of the alarm
- **Date:** date and time that the alarm was generated

4.2.2 Viewing Channel Status

The 'Home' page displays channel port icons that indicate the voice channels' operating status. You can use these port icons to drill down to view detailed channel status. For a detailed description of the 'Home' page, refer to the device's User's Manual.

Figure 4-2: MP-11x Home Page

Figure 4-3: MP-124 Home Page

Table 4-3: Color-Coding of Channel Status Icon

Icon State	Color	Description
	Red	Line not connected (only applicable to FXO devices).
	Gray	Channel inactive.
	Blue	Handset is off-hook.
	Green	Active RTP stream.

You can drill-down to view a detailed status of each channel.

➢ **To view a detailed status of a channel:**

1. In the 'Home' page, click the port of whose status you want to view; a shortcut menu appears.
2. From the shortcut menu, choose **Port Settings**.

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